Empathy in Video Games and Other Media

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Empathy in Video Games and O**ther Media**

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1. Introduction

> *"If our Homo sapiens brain was designed to be touched only by our tribe and not by Dickens' orphans, then it was not meant to be touched by the American G.I. stuck in Iraq, admitting on his blog that he doesn't know why he's there (…) Nor was it designed to connect to the Iraqi who writes that he's (…) lost loved ones, feels utter hopelessness for the future and in his rage, only wants to act out violently."*
> (Manney, 2008, p. 53)

Media are deeply related to the way we live our everyday life. Some years ago digital media were predominantly consumed by younger people; nowadays they are used widely and across all generations. At the same time, a general decrease in altruism, empathy and charity, as well as an increase in selfishness in our society are recurrently discussed (e.g., Penner, Dovidio, Pilavon, & Schroeder, 2005). In line with this, crime against stigmatized, marginalized, or otherwise defenseless groups has increased (e.g., homeless; Konrath, 2010). Thus, grown attention has been paid to both the effects of media use and empathy in recent years (e.g., Anderson et al., 2010; Bennett, 2012). Both research fields share their relevance for society and our daily social interactions. The importance of media effects research is emphasized regularly when newspaper articles report about school shootings, the so-called digital native generation or the future and general implications of media entertainment in our society. As everyone, voluntarily or not, is in contact with media and its content, especially the effects of the consumption of violent content in various media types have been widely investigated for some decades. Research about the "new kid on the media violence block" (Anderson et al., 2010, p. 152), video games, has almost outnumbered studies regarding other types of media (for an overview see Happ, Melzer, & Steffgen, in press). For two reasons, the potential risks for society of these developments in higher media use and especially video game use need to be investigated thoroughly:

(a) the usually high rate of violence in media content (e.g., Smith, Lachlan, & Tamborini, 2003), and

(b) the potential negative effects of violent media on users (e.g., Anderson et al., 2010).

Apart from investigating the effects of media use, this thesis focuses on the concept of empathy and its potential role in media use research. Empathy is not only a factor in the therapeutic process, but is tremendously important in the fields of social and personality psychology, as the personality trait of empathy is closely linked to many behavioral and cognitive outcomes in our daily interactions (e.g., Hoffman, 2001). Research suggests that taking the perspective of another person and understanding his or her feelings is a relevant element of social competence.

Empathy has been investigated in many areas, but little attention has been paid to the relevance of empathy in the media context. It is well understood that people react emotionally to media content (Nathanson, 2003; Schramm & Wirth, 2006). Some are moved by the storyline of a movie, some engaged in a video game or glad when a novel ends happily, but the processes a fictional character triggers in media users are not yet fully understood. Nonetheless these emotional processes are amongst others affected by personality traits (e.g., empathy) and situational settings (e.g., state empathy). Inspired by this research gap, this thesis brings the concept of empathy into the field of media use and media effects and explores the mechanisms behind empathy´s potential moderating functions in this context. Manuscript #1 and Manuscript #2 investigate the effects of empathy induction before playing either a violent or prosocial video game on players´ perception and behavior. Manuscript #3 suggests a new instrument to assess media-based empathy. Before describing the three manuscripts in more detail, I will outline the importance of the research landscapes of media effects and empathy separately.

1.1. Media use and media effects

Media use and media content. In our Western society, the prevalence of media use in its various forms (e.g., TV, Internet, video games) has grown strongly. From early infancy onwards, children are provided with many mediatized windows to the world that add to their socialization experienced with families and peers (Wilson, 2008). Even if children and adolescents are not actively seeking media information, everyone is passively exposed to these media windows (Melzer, Happ, & Steffgen, 2010). In line with this research, Dill (2009) showed that children in the U.S. spend more time watching television and movies, playing video games, and surfing the Internet than they spend in school per year. Especially video games play an increasingly prominent role in people's lives (e.g., Gentile, Coyne, & Walsh, 2011). The motives are diverse, but recent findings suggest that players seek to escape from the pressures and demands of their real life into the fictional worlds filled with success, exhilaration, love, and excitement (Raney, 2011). In Germany – which constitutes the second largest computer- and video game market – the sale of video games exceeded 1.5 billion Euros in 2011 (see BIU, 2012). Nevertheless, besides having an economic impact, video games on various devices (e.g., computers, handheld devices, cell phones, and game consoles; see Williams, Yee, & Caplan, 2008) are of major relevance for social processes.

In terms of media content, studies show that 68% of all video games contain some sort of violence. These figures are mirrored in other media: 60% of television programs and 90% of all movies show violent content (Smith et al., 2003). As cathartic explanations for playing violent video games (i.e., playing violent games gets anger out of players; e.g., Kutner & Olson, 2008) has been scientifically rejected (e.g., Bushman & Whitaker, 2010), violent content is shown to be potentially harmful (Anderson et al., 2003). For video games, it has been demonstrated that violent content makes the game more attractive to

players (Persky & Blascovich, 2007). This violence in video games may range from shooting other characters to hunting ghosts and has not yet been systematically reviewed (see Barlett & Rodeheffer, 2009). Adding to these forms of fictional violence, the content of media-based digital communication modes (e.g., mobile phones, chat) may also contain aggressive and even violent elements (e.g., cyberbullying; Jäger, Fischer, & Riebel, 2007; Techniker Krankenkasse, 2011).

Media effects. Within the sheer expanse of media available, the amount of violent content in the media may be problematic (Melzer et al., 2010). Even though electronic media use may be beneficial for users (e.g., Gentile et al., 2009), a wealth of studies has been published on the differential effects of violent media. Although the negative effects of violent television content (e.g., Murray, 2008; for a meta-analysis see Paik & Comstock, 1994) and violent video games have been well documented (for a recent meta-analysis see Anderson et al., 2010; Anderson & Bushman, 2001), some authors still doubt the relationship between violent media content and parameters of aggression in media users (Ferguson, 2007, 2008; Savage & Yancey, 2008). This difference in perspective leads for example to various discussions regarding the predictability of school shootings (e.g., Anderson & Dill, 2000), more restrictive and even prohibitive regulation of media use (e.g., Liptak, 2010) and protective factors in media users (Gentile & Bushman, 2012).

The more recently developed medium video game differs from television in many ways. Differences include its higher potential of immersion (i.e., being more engaged in a fictional story; Williams et al., 2008), and its higher level of self-efficacy (i.e., one's ability to complete tasks and reach goals; e.g., Klimmt & Hartmann, 2006). Therefore, it is not surprising that the (usually negative) effects of violent content seem to be even larger for video games than for television (Anderson et al., 2007; Polman, Orobio de Castro, & van Aken, 2008). As a result, this thesis will most prominently focus on video game use, even

though similar patterns of effects are reported for other media like television use (Eron, Huesmann, Lefkowitz, & Walder, 1972; Huesmann & Kirwil, 2007; Maass, Lohaus, & Wolf, 2010).

In video games, as opposed to movies and television, reinforcement and reward (e.g., entering the next level, compliments from peers) for successful actions are immediate and direct (e.g., through visual effects and sound; Melzer et al., 2010). This feedback and the corresponding learning process may be very dangerous for the user (Gentile & Gentile, 2008), as digitized violence and aggressive or antisocial behavior in video games is often rewarded rather than punished (e.g., Anderson, Gentile, & Buckley, 2007). The effects of violence in video games, as compared with neutral or prosocial gaming conditions, are found at many levels, including more aggressive behavior (e.g., Konijn, Nije Bijvank, & Bushman, 2007), aggressive cognitions (e.g., Anderson & Carnagey, 2009), physiological arousal (e.g., Carnagey, Anderson, & Bushman, 2007), and even increased general health risks for players (e.g., Borusiak, Bouikidis, Liersch, & Russel, 2008).

As aggression is typically defined as any behavior that is intended to harm another person who is motivated to avoid the harm (Baron & Richardson, 1994), measuring aggressive behavior in the laboratory may sometimes be problematic (e.g., Ritter & Eslea, 2005) and alternative measures indicating an aggressive attitude are more frequently used. For example, violent video games have been demonstrated to increase expectations of aggressive content when completing open (neutral) stories. Violent game play also intensified the so-called hostile attribution bias, i.e. the tendency to perceive social interactions as being aggressive (e.g., Bushman & Anderson, 2002). Furthermore, playing violent video games was shown to reduce prosocial behavior (Sheese & Graziano, 2005) and empathy in players (Carnagey et al., 2007). While experiments and cross-sectional studies describe immediate effects, longitudinal studies provide evidence for both negative long-term effects of violent video game content, as well as an interaction of media use and

media effects (e.g., Anderson et al., 2007; Gentile et al., 2011; Hopf, Huber, & Weiss, 2008; Möller & Krahé, 2009). Violent media consumption intensifies interest in aggressive content, which, in turn, leads to higher levels of aggression in the media user (i.e., downward spiral model; Slater, Henry, Swaim, & Anderson, 2003).

As for other media types (see Mares & Woodard, 2005), research not only covers the deleterious, but also the beneficial effects of video games. A series of studies have focused on educational games (e.g., Murphy et al., 2002), prosocial effects of non-violent (Sestir & Bartholow, 2010) or prosocial video games (e.g., Chambers & Ascione, 1987; Gentile et al., 2009; Greitemeyer, 2011; Saleem, Anderson, & Gentile, 2012; Taylor, 2006), and on the improvement of reaction abilities (e.g., Dye, Green & Bavelier, 2009). In an interdisciplinary approach, psychologists, pedagogues, and computer scientists have even coined the terms "serious games" and "game-based learning" to denote game-like tools that are carefully designed according to current models of educational learning (e.g., Michael & Chen, 2005; Prensky, 2004; Ritterfeld & Weber, 2006). Thus, video games can provide an excellent medium for learning (Gentile & Gentile, 2008).

Theoretical explanations for media violence effects. The General Aggression Model (GAM) integrates a wide range of more specific social-cognitive models of aggression and can be applied to violent video game content (e.g., Anderson & Bushman, 2002a; Carnagey & Anderson, 2004; see Figure 1). The model shows how learning in combination with developmental processes shapes aggressive behavior and eventually contributes to changes in personality. In addition to the violent stimulus, situational and personal variables interact to affect thoughts, but also feelings and arousal of a person (Anderson & Bushman, 2002a). Together, these factors determine how an aggressive (media) stimulus is interpreted (Anderson et al., 2004) and how to react behaviorally. In the long term, the

constant consumption of violent content may lead to a more hostile personality and desensitization (e.g., Buckley & Anderson, 2006). Frequent users of violent media may become numb to the pain and suffering of others (Bushman & Anderson, 2009). If the GAM is applied to other types of social behavior (e.g., helping), it is known as the General Learning Model (GLM; Buckley & Anderson, 2006; Gentile et al., 2009). According to the GLM, playing violent video games increases the activation of aggressive cognitive concepts, while prosocial games activate prosocial cognitive concepts (Whitaker & Bushman, 2012).

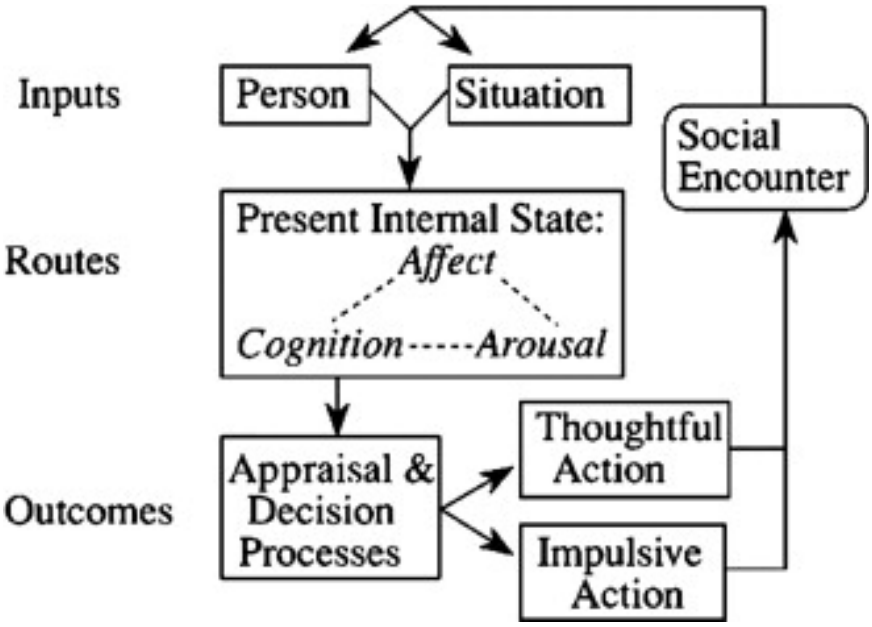

Figure 1. The General Aggression Model (Anderson & Bushman, 2002a)

More recently, as the GAM was often misinterpreted in the media as describing a deterministic view on the effects of violent video games (e.g., Anderson & Bushman, 2002b), the GAM has been enriched by a more probabilistic interpretation. According to the risk and resilience perspective (Gentile & Bushman, 2012), violent gaming is defined as only one amongst other social, biological and psychological factors when predicting antisocial behavior. When comparing the influence of these factors, however, the effect of

media violence is similar or larger than the effect of many other public health threats (e.g., condom use and sexually transmitted HIV; Bushman & Huesmann, 2001; Huesmann, 2007). This probabilistic perspective seems more appropriate than the causal approach occasionally used in the last decades.

To facilitate the process of investigating the role of video games in the prediction of aggressive behavior, Gentile (2011) has identified five dimensions in which video game players may be affected or which may moderate the effect video games have on the player. According to this proposition, the extent to which violent video games affect the user depends not only on the content, but also on the amount of game play, the context (e.g., playing the same violent video game together with or against others), the structure (e.g., more realistic screen representations) and the mechanics (e.g., playing a racing game with brake and wheel vs. playing with a controller) of the game (see Gentile, 2011).

Moderating factors of video game effects. Together, all theoretical approaches mentioned above enable researchers to investigate video game effects in more detail, as studies may focus on a specific dimension or particular risk factors in players. Some factors may moderate the effects of violent video games by determining how the media content is perceived and how it affects subsequent affect, cognitions and behavior (see also Gentile, 2011). These components can be situated in the player and his or her social environment (e.g., family variables, personality traits), in the situation (e.g., playing alone), in the medium (e.g., reality, speed) or in the individual perception of the medium content by the player (e.g., identification). Medium-related factors are commonly controlled in experimental research. When exploring the effect of the video game content, for example, gaming conditions need to be matched regarding competitiveness (Adachi & Willoughby, 2011a; Carnagey & Anderson, 2005; Schmierbach, 2010), game perspective (e.g., first-

person-shooter; Farrar, Krcmar, & Nowak, 2006), technical parameters (e.g., the virtual environments vs. traditional platforms; Persky & Blascovich, 2007) as well as difficulty and speed (see Adachi & Willoughby, 2011b). Potential effects may otherwise not be attributable uniquely to the (violent) content of the game. Player-specific characteristics, such as gender, age, and general media use, as well as some personality traits (e.g., aggression; Przybylski, Ryan, & Rigby, 2009), have already received much research attention (Barlett, Harris, & Baldassaro, 2007). Situational gaming variables have also been covered by numerous empirical studies (e.g., playing alone or in teams; Greitemeyer, Traut-Mattausch, & Osswald, 2012; watching someone else play vs. playing; Polman et al., 2008). However, more complex factors such as the justification of virtual violence in the video game (Hartmann, Toz, & Brandon, 2010) or to what extent a player identifies with a violent avatar (Konijn et al., 2007), have only recently been subject to research studies and are not yet fully understood.

1.2. Empathy

One of these more complex factors, which may influence media effects on users, is empathy (Nathanson, 2003). The factor empathy can be situated both in the player (i.e., as a personality trait) and in the situation (i.e., feeling empathy while using media). The following section will introduce the construct of empathy and an overview will be given on how and why empathy may be relevant as a moderator in the media context.

Definitions. The term empathy was coined by Titchener (1909) as a translation from the German word “Einfühlung” to describe the process of perceptually seeing something from the inside (Batson & Shaw, 1991). Today, empathy researchers define empathy commonly

as "an emotional response that stems from another's emotional state or condition and is congruent with the other's emotional state or condition" (Eisenberg, Shea, Carlo, & Knight, 1991, p. 65). The term empathy is often confused with the term “sympathy”. Even though an overlap exists between the two concepts, there is also an important difference. While empathy describes congruent feelings with a target person (Eisenberg, 2000), sympathy refers to differing feelings between the observer and the target. Another term that may seem appropriate for naming this emotional response may be the concept of "compassion", which Lazarus (1991) describes as "being moved by another's suffering". While empathy describes the visceral or emotional experience of actually feeling another person’s feelings, compassion only refers to the emotional response when perceiving suffering (Seppala, 2013).

In addition to the affective component of empathy, in most modern definitions the concept comprises a cognitive dimension (i.e., perspective taking; see Cohen & Strayer, 1996; Jolliffe, & Farrington, 2006). Truly, the concept of cognitive empathy is still slightly different from perspective taking, as cognitive empathy describes knowing another person´s internal state with both feelings and thoughts, while perspective taking relates to imagining how one would think and feel in the other´s place (for a more detailed overview see Batson, 2009). Still recognizing this distinctiveness, in this thesis the cognitive side of empathy will also be referred to as perspective taking like in other publications (e.g., Davis, 1983; Jolliffe, & Farrington, 2006). Thus, affective empathy describes the process of feeling what a target person feels (Davis, 1994; Hoffman, 2001), whereas cognitive empathy is the ability to take the perspective of another person and to understand his or her feelings, thus being more than an automatic response (Haidt, 2003). In this sense, cognitive empathy is a requirement for feeling affective empathy (e.g., Zillmann, 1994).

Empathy as a personality trait can be learned or promoted in trainings (e.g.,

Manger, Eikeland, & Asbjørnsen, 2001; for an overview see Berghofer, Gonja & Oberlechner, 2008). The importance of being able to empathize can be most easily understood when imagining the absence of empathy. The constant and continuous lack of either of the two components may have severe effects on psychological health. While autistic patients, for example, lack the ability to read other people´s thoughts, people suffering from psychopathy have difficulties to read other's emotions (Pinker, 2011).

Correlates of empathy. In general, being empathic is perceived as a socially desirable personality trait that is directly related to many other positive outcomes and forms of social behavior. Empathy increases, for example, the willingness to help others and to feel with them (Hoffman, 2000) and correlates positively with prosocial behavior (e.g., Eisenberg & Miller, 1987), normative behavior (Bierhoff, 2000), and with a positive family atmosphere (e.g., Davis, Conklin, Smith, & Luce, 1996). In line with these findings, trait empathy correlates negatively with antisocial and delinquent behavior (e.g., Miller & Eisenberg, 1988; Jolliffe & Farrington, 2004), and bullying (Gini, Albiero, Benelli, & Altoè, 2007). Most of these relationships found in adult samples have also been replicated in children (Eisenberg et al., 1993; Kaukiainen et al., 1999; Scrimgeour, 2007). Research on empathy trainings further supports these findings: individuals having participated in an intervention show less aggressive behavior (e.g., Feshbach & Feshbach, 1982; Pfetsch, Gollwitzer, Steffgen, Gollwitzer, & Ittel, 2011) and less social problems (e.g., Chalmers & Townsend, 1990) afterwards. As empathy training promotes the reduction of negative social behaviors as well as improves individuals' prosocial interactions with others, (affective) empathy mediates social behaviors (e.g., Eisenberg & Miller, 1987). Unfortunately, to our knowledge, no one has explicitly tested whether perspective taking skills mediate (Baron & Kenny, 1986) the effects of empathy on aggressive and antisocial

responding.

Recent findings suggest that affective and cognitive components of empathy affect subsequent behavior differently (e.g., Galinsky, Maddux, Gilin, & White, 2008), and some studies even found counterintuitive effects of empathy (e.g., Epley, & Caruso, 2009; Vorauer & Sasaki, 2009). Thus, empathy seems to increase aggression under certain circumstances (e.g., when someone else is responsible for an unpleasant situation; Kuppens & Tuerlinckx, 2007). Empathy may even cause sadism or schadenfreude when combined with feelings of anger or aggression (Bischof-Köhler, 2006). Furthermore, in a negotiation process, only cognitive empathy (i.e., perspective taking) is helpful for finding an agreement, while affective empathy is not (Galinsky et al., 2008). These findings highlight the importance of taking into account the different dimensions of empathy, as well as contextual and situational aspects when researching empathy.

Additionally, the role of empathy as a potential moderator between different social situations and participants´ behavior in these situations is frequently studied. Commonly, experimental manipulations are used. To increase empathy in participants, they can be requested to imagine what they him- or herself or someone else would feel like in a certain situation (see Batson, Early, & Salvarini, 1997; Davis, 2004). Putting oneself into the shoes of a victim in a violent situation, for example, has been shown to lead to experiencing the negative impact of the violence more strongly (Heckhausen, 1989). This experience may change participants´ perception of violent behavior (Miller & Eisenberg, 1988) and their own future behavior substantially (e.g., Calvert, Strouse, & Murray, 2006; Steffgen, König, Pfetsch, & Melzer, 2011).

Assessment of traditional empathy. Even though empathy is related to neural processes (mirror neurons; Gallese, Gernsbacher, Heyes, Hickok, & Iacoboni, 2011; Singer et al.,

2006) and the neuropeptide oxytocin (Bartz et al., 2010), it is mostly assessed by means of self-report questionnaires. Other methods to measure empathy include picture/story methods, wherein participants´ reported affect is matched with that of a story protagonist in hypothetical stories. Empathy may also be measured via observing facial and gestural reactions to emotional content (for a detailed overview see Miller & Eisenberg, 1988; Zhou, Valiente, & Eisenberg, 2003). When using questionnaires, however, the Interpersonal Reactivity Index (IRI; Davis, 1983) is one of the most frequently used and reliable measures of empathy (for an overview see Holz-Ebeling & Steinmetz, 1995; Jolliffe & Farrington, 2004; Steins, 1998). In addition to the cognitive (i.e., perspective taking) and the affective (i.e., empathic concern) dimensions of empathy, the IRI measures personal distress and fantasy empathy. The personal distress subscale primarily covers self-related feelings and has therefore been excluded from the total score of empathy (Eisenberg, 2010; Paulus, 2009). Conversely, the subscale fantasy empathy is one of the first scales to measure empathy in fictional contexts.

1.3. The present research

Against the backdrop of the behavioral effects of video games, it is surprising that only recently empathy has been introduced into the field of video game research (e.g., Bartholow, Sestir & Davis, 2005; Hartmann et al., 2010; Konijn, Nije Bijvank, van der Heijden, Walma van der Molen, & Hoorn, 2008). As human behavior is multicausal (Gentile & Bushman, 2012), playing a violent video game is neither a necessary nor a sufficient factor to cause negative effects in players. Situational factors as well as the personality of the player do not only interact with media experience, but may also function as separate, strong risk factors when predicting pro- and antisocial behavior after media use (e.g.,

Engelhardt, Bartholow, & Saults, 2011). As the roles of potential moderators are not yet extensively researched and in accordance with suggestions by Anderson, Gentile and Dill (2012), the present thesis will investigate the role of situational protective factors when perceiving media content (e.g., empathy; Manuscript #1 & Manuscript #2) or stable personality features (e.g., empathy in the media context; Manuscript #3), which may reduce the negative effects of violent video games or facilitate prevention and intervention approaches in the context of negative effects of media use. More precisely, this thesis aspires to advance the understanding of the moderating function of empathy in modern media from two different points of view (see Figure 2), which will be briefly presented hereafter:

(1) the moderating function of an empathy induction in the context of media effects (state empathy)

(2) media-based empathy (MBE) as a personality trait in the context of media use and media effects (trait empathy).

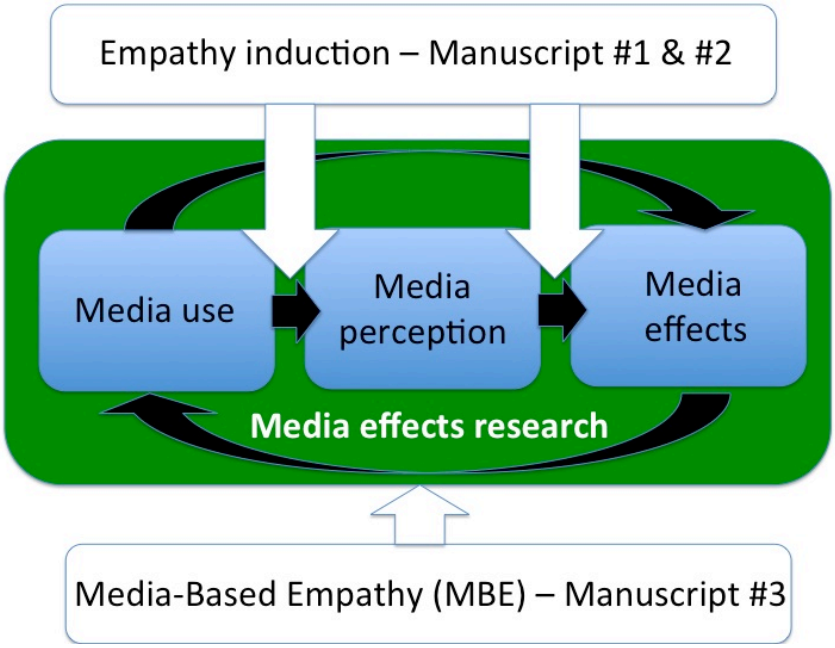

Figure 2. The role of empathy in media effects research addressed in this thesis.

Manuscript #1 and Manuscript #2 – Induced state empathy. As mentioned above, media effects may be moderated by empathy in various ways (see Nathanson, 2003). The user´s attention may shift due to a sad event, the storyline changes tragically, the identification or emotions towards a character increase: all of these events may alter the perception of the media content and also subsequent behavior. Studies have shown that when attention is focused on the victim of violent behavior in a video game, empathy increases (Konijn et al., 2008) and the general acceptance of violence diminishes (Nathanson & Cantor, 2000).

On the other hand, when participants are asked to take the perspective of an avatar or to identify with a potentially violent character, the characteristics of this avatar (e.g., the moral valence of the character) become more relevant for predicting gaming perception and subsequent behavior. Studies show that, if the character is liked for example, the attitude toward this character is influenced positively (Alhabash & Wise, 2012). High identification with a violent video game character has repeatedly shown to increase aggression when playing violent video games (Konijn et al., 2007; Schneider, Lang, Shin, &

Bradley, 2004), even more so when the avatar is created by the player him- or herself before game play (Fischer, Kastenmüller, & Greitemeyer, 2010). These effects mirror research findings regarding identification with television characters (Funk, Bechtoldt-Baldacci, Pasold, & Baumgartner, 2004; Huesmann, Moise-Titus, Podolski, & Eron, 2003).

Even though violent "heroes" are frequently presented in the media (Hoffner & Cantor, 1991), only few studies have investigated users' perception of their character´s morality so far (Hartmann et al., 2010; Joeckel, Bowman, & Dogruel, 2012; Weaver & Lewis, 2012). When the avatar in a video game is introduced in an emotional way, effects are not straightforward. For a morally good character, negative behavioral effects after playing the violent video game are reduced (e.g., Jin, 2011), whereas for a bad character, negative effects can even increase after an empathic or emotional introduction (see Haidt, 2003; Raney, 2005).

In Manuscript #1 and Manuscript #2, video games are used for all three experimental studies. This is not only due to the technological advancement of video games mentioned above, but in video games empathy plays a specific role. Some characteristics of video games specifically promote identification with the avatar, for example (e.g., first-person perspective; Klimmt, Hefner, & Vorderer, 2009), as players may adopt novel identities in video games and "try on" ideal characteristics (Przybylski, Weinstein, Murayama, Lynch & Ryan, 2012) to feel completely immersed in the game (e.g., Persky & Blascovich, 2008). In contrast to other media types, video games promote even more involvement (e.g., Jansz, 2005). Players may experience similar feelings to the character and potentially even imitate the character´s behavior after the game is turned off (Konijn et al., 2007). While some researchers claim that this process of perspective taking triggers empathic emotions (Cohen, 2001; Zillmann, 1994), the possibility to feel true empathy while playing a video game character has also been questioned (Annetta, 2010; D'Aloia,

2009; Schirra & Carl-McGrath, 2002).

Research has shown the induction of empathy is a frequently used experimental manipulation in order to buffer aggressive behavior in real world settings (e.g., Miller & Eisenberg, 1988). This thesis investigates in Manuscript #1 and Manuscript #2 if similar buffering effects are to be expected in virtual environments like video games (see Hodson, Choma, & Costello, 2009), or if empathy may backfire depending on the characteristics of the video game character played.

Manuscript #1

Happ, C., Melzer, A., & Steffgen, G. (submitted). "I (am) like the Bad Guy!" – The Role of Empathy in Violent and Prosocial Video Games. ***Psychology of Popular Media Culture.***

In Manuscript #1, empathy was induced in two experiments by means of a text (Study 1) or a short video clip (Study 2) prior to playing a video game. In Study 1, this manipulation was used for both a prosocial and a violent commercial video game, whereas in Study 2, only a violent video game was used. In this game half of the participants played a sympathetic character (i.e., a female victim) and the other half played a cruel character (i.e., the perpetrator). Thus, Manuscript #1 aims at exploring the role of empathy as a moderator both in a prosocial and a violent video game (Study 1). Additionally, in a violent video game the moral valence of the own character is tested (Study 2). Differential effects of the empathy induction on cognitions and behavior depending on the nature of the subsequent video game were explored.

Manuscript #2

Happ, C., Melzer, A., & Steffgen, G. (in press). Superman vs. BAD man? – Empathy and game character influence the effects of violent video games. ***Cyberpsychology, Behavior, and Social Networking***

Following up on the results from Manuscript #1, in Manuscript #2 the mechanisms behind the moderation of an empathy induction between violent video game play and subsequent behavior is investigated in more detail. This includes the assessment of the level of identification with the game own character, and players' interpretation of whether or not the actions of this character in the game are conceived as moral. Morality in games has not yet been fully researched in the past (see Hartmann et al., 2010). In Manuscript #2 the effects of two well-known moral characters were tested (i.e., hero vs. villain). More precisely, different from the induction in Study 2 in Manuscript #1, the moral interpretation of the characters was hence predefined. As violent "heroes" are frequently presented in the media (Hoffner & Cantor, 1991) but rarely investigated, Manuscript #2 examined differential effects for the comic hero Superman and the evil villain Joker.

Manuscript #3 – Measuring trait media-based empathy. As described before, empathy as a personality trait has already been included in various media effects studies. Hence, it is found that high trait empathy seems to be a predictor for a low preference of violent media content (Funk & Buchman, 1995; Krahé & Möller, 2010) and other studies list trait empathy as one of their relevant outcomes when describing the desensitizing effects of violent video games (e.g., Anderson et al., 2010). According to this, trait empathy may influence media use and may at the same time be affected by media effects. To date, only few studies have investigated trait empathy as a moderator in media effect studies (e.g., Calvert et al., 2006).

Video games (e.g., Anderson et al., 2010; Belman & Flanagan, 2009; Bennett, 2012) and the general use of fictional media (e.g., Mar, Oatley, Hirsh, dela Paz, & Peterson, 2006) have also been shown to foster empathy in media users. Pinker (2011) states that reading novels facilitates taking the perspective of others whose perspective we would have never taken otherwise, as they are entirely different from ourselves.

Empathy may not only relate to real face-to-face interactions and feelings towards a fictional character, but also to interactions with real people via various media channels. Due to the increasing use of modern media (e.g., E-mails, Blogs, chats, video games; BIU, 2012; MPFS, 2012), many forms of communication, especially in children's and adolescents´ lives, are taking place through media channels. When using media, communication behavior may differ from face-to-face interactions. These virtual interactions may include different emotional involvement or antisocial behavior such as cyberbullying (Langos, 2012).

Cyberbullying refers to an intentional harm to others through media (e.g., Tokunaga, 2010) and has become a social reality in the last decade. Almost every fifth child in Germany reports having experienced cyberbullying (Techniker Krankenkasse, 2011). Cyberbullying does not only affect victims and perpetrators, but also the role of bystanders and observers needs to be addressed when discussing empathy in the media context (Pfetsch et al., 2011; Salmivalli, 2010). So far, traditional forms of empathy have been examined in cyberbullying and are typically negatively related to the perpetrator role (Ang & Goh, 2010; Pfetsch, Müller & Ittel, 2012; Renati, Berrone & Zanetti, 2012; Schultze-Krumbholz & Scheithauer, 2009; Steffgen et al., 2011).

A conceptual differentiation between empathy in the direct interaction and empathy in the context of media has been advocated, as related but clearly distinct mechanisms play a role when feeling empathy in the media context (see Leibetseder,

Laireiter, & Köller, 2007; Shapiro & Rucker, 2004; Westermann, Spies, Stahl & Hesse, 1996). Some existing scales already target empathy for fictional characters (e.g., E-Scale; Leibetseder et al., 2007). One prominent measure is the IRI subscale fantasy empathy, assessing empathy in fictional contexts (Davis, 1983). However, it has to be noted that some current instruments lack the differentiation between affective and cognitive dimensions (e.g., Davis, 1983), while others do not account for all modern active and passive media forms with fictional characters and real people (e.g., Leibetseder et al., 2007; Früh & Wünsch, 2009). Additionally, these scales have not been examined regarding their predictive power in media effects research (Hosser & Beckurts, 2005). As immersion and identification in video games are more frequently measured in video game studies (e.g., Persky & Blascovich, 2008), first propositions were made to measure identification in video games through questions about empathy (Cohen, 2001; Zillmann, 1991). Immersion in narratives describes a strong sense of connection or familiarity with fictional characters (Klimmt et al., 2009). Immersed players are more likely to identify with their own video game character (see Konijn et al., 2007). Due to the high frequency and intensity of media use in our society (e.g., Steffgen et al., 2011), the development of a scale to measure media-based empathy is most warranted. Based on these various theoretical and empirical arguments, developing a novel scale to measure empathy in the media context is necessary. In Manuscript #3 a scale for media-based empathy (MBE) is developed, validated and recommended for future use in the field of media effects research.

Manuscript #3

Happ, C. & Pfetsch, J. (submitted). Medienbasierte Empathie (MBE) – Entwicklung eines Instruments zur Erfassung empathischer Reaktionen bei Mediennutzung. *Diagnostica.*

Viewers often respond emotionally to fictional content, as if it was real (Slater et al, 2006; Weaver & Lewis, 2012). People's empathic response to this content (e.g., Konijn, Walma van der Molen, & Van Nes, 2009) may moderate the perception of how much it is liked and how this content influences users in their emotions, cognitions, and behavior. However, unique and separate processes are responsible for empathy in the media context and in real direct communications (Leibetseder et al., 2007). In Manuscript #3 a new measuring scale for Media-Based Empathy (MBE) is proposed, which covers recent media use habits appropriately. This includes affective and cognitive empathic reactions to active and passive media types and interactions with fictional and real entities. In three different samples the five subscale *media compassion, affective media empathy, cognitive media empathy, media concern*, and *immersion in video games* are tested for reliability, factorial structure, stability and convergent and discriminant validity (Campbell & Fiske, 1959). Samples include a student and an adult sample to account for differing habits of media use. The construct validity is explored via the relationships to other variables relevant for the MBE construct, including traditional forms of empathy (i.e., IRI; Davis, 1983), aggression, cyberbullying and media use. Furthermore, trait MBE is studied as a potential protection factor when explaining effects of violent media use (see Gentile & Bushman, 2012).

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Manuscript #1

"I (am) like the Bad Guy!" – The Role of Empathy in Violent and Prosocial Video Games

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Abstract

Evidence suggests that violent media influence users' cognitions, affect and behavior in a negative way, whereas prosocial media have been shown to increase the probability of prosocial behavior. In the present study it was tested whether empathy moderates these media effects. In two experiments (N=80 each), inducing empathy by means of a text (Study 1) or a video clip (Study 2) prior to playing a video game caused differential effects on cognitions and behavior depending on the nature of the subsequent video game: The induction had positive effects on participants' behavior (i.e., decreasing antisocial and increasing prosocial behavior) after a prosocial game (Study 1), or when participants played a positive hero character in an antisocial game (Study 2). In contrast, empathy increased antisocial behavior and reduced prosocial behavior after playing a mean character in an antisocial game (Study 1 & 2). These findings call attention to the differential effect of empathy depending on game type and game character, thereby questioning the unconditional positive reputation of empathy in the context of video game research.

Keywords: video game; empathy; aggression; prosocial behavior

Introduction

"Empathy is the glue of the social world."

(Baron-Cohen & Wheelwright, 2004, p. 163)

In Western society the prevalence of media use has grown strongly and especially video games play an increasingly prominent role in young people's lives (Gentile, Coyne, & Walsh, 2011). At the same time, with regard to violent content, media are potentially harmful for the recipients on cognitive, emotional, physiological, and behavioral levels (e.g., Anderson et al., 2010), causing increased aggression and reduced prosocial (e.g., helping) behavior. Unfortunately, the two distinct concepts of violent and prosocial games are conflated in some studies (e.g., Greitemeyer & Osswald, 2010). As violent games are only one possible variation of antisocial games, we conceptualize the spectrum in our study along the prosocial/antisocial dimension, thereby avoiding this confound. A mechanism potentially underlying the causal relationship between violent media consumption and negative effects is people's empathic response to media content. This is especially important as viewers often respond emotionally to what they perceive on their screen. People may even adopt emotions that are portrayed on TV, show empathy for the characters, get immersed in the narrative, or go through other affective processes (Konijn, Walma van der Molen, & Van Nes, 2009). As empathy has also been demonstrated to have positive effects on cognitions and behavior (e.g., Condon & DeSteno, 2011), the interplay of antisocial versus prosocial media content and the implementation of an empathy induction before media exposure was the main focus of this study.

Media use, video games, and violence

Today, at least six out of ten TV programs feature forms of physical aggression in the plot

(Wilson, 2008). A lot of studies have been published on the effects of media violence on recipients. The majority of studies propose negative effects of playing violent video games (Anderson et al., 2010). However, violent gaming has been identified as only one amongst other factors when predicting antisocial behavior (Gentile & Bushman, 2012). Other researchers even failed to find significant effects for violent video games (Ferguson & Dyck, 2012).

The effects of violent video games include standardized measures reflecting indicators of aggression on physiological, emotional, cognitive, and behavioral levels, but also indicators of empathy and prosocial behavior (Anderson et al., 2010). Repeated exposure to models showing antisocial behavior like, for example, when playing violent video games repeatedly or over a longer time, has been reported to increase antisocial behavior and decrease prosocial behavior (Buckley & Anderson, 2006). Furthermore, violent video game exposure is related to lower levels of prosocial behavior, a decrease in empathy and an increase in desensitization, that is, a decreased sensitivity to violence and a greater willingness to tolerate higher levels of violence. Compared to their nonviolent counterparts, for example, playing violent games leads to less empathetic responses (Carnagey, Anderson, & Bushman, 2007; Krahé & Möller, 2010), and less helping behavior (Sheese & Graziano, 2005).

In sharp contrast to antisocial video games, only few prosocial games are commercially available (e.g., Greitemeyer, Osswald, & Brauer, 2010). Recently, Sestir and Bartholow (2010) found in two experiments that nonviolent video games decrease aggression and strengthen prosocial thoughts. In fact, there are many studies supporting the positive effect of prosocial media content (Mares & Woodard, 2005). The General Learning Model (GLM; Buckley & Anderson, 2006) serves to explain both the negative and positive effects of media use. The model claims that games have the potential to teach something to media users depending on the content of the game that determines which

attitudes, beliefs, and behavioral patterns will be learned. While antisocial content has been linked with antisocial and aggressive behavior, prosocial content is associated with prosocial behavior (Barlett & Anderson, 2011). In line with this reasoning, playing prosocial games has been suggested to increase the activation of prosocial cognitive concepts (Whitaker & Bushman, 2012). Taken together, video games may therefore provide the perfect ground both for prosocial or antisocial learning. Likewise, video games may either become a positive learning tool or a risk factor.

Empathy

Cohen and Strayer (1996) define empathy as "the ability to understand and share in another's emotional state or context" (p. 988). While the affective component of empathy involves an emotional response to another's affective state, the cognitive component involves understanding another's feelings. Either component on its own does not fully describe empathy as affect and cognition are typically linked in empathy (Cohen & Strayer, 1996). Empathy may be reliably measured with the Interpersonal Reactivity Index (IRI; Davis, 1983), which assesses both components separately, but also provides a one-dimensional sum score. In addition to Cohen and Strayer's two major components of cognitive and affective empathy, the IRI broadens the concept by including a dimension for empathy in fictional contexts. This component is supposed to measure both affective and cognitive reactions to emotional content in various media channels. Leibetseder, Laireiter, and Köller (2007) argue that this differentiation is necessary as empathetic reactions to real situations might be based on other cognitive and emotional processes than fictional ones.

Among other outcomes, empathy increases the willingness to help others and to feel with them (Hoffman, 2000), even if this includes members of stigmatized groups (Batson et al., 1997). In violent situations, feeling oneself into the victim leads to experiencing the

negative impact of violence, which keeps the perpetrator from using it (Heckhausen, 1989). This means that empathy does not only affect people's behavior substantially (e.g., Calvert, Strouse, & Murray, 2006; Steffgen, Pfetsch, König, & Melzer, 2011). Rather, empathy may also serve as a major moderator of the responses to violent behavior (Miller & Eisenberg, 1988).

Under certain circumstances, however, empathy can also increase aggression (e.g., Kuppens & Tuerlinckx, 2007). Here, empathy was related to anger if someone else was responsible for their unpleasant situation. For empathy in terms of concerns for unfortunate others, this finding may seem counterintuitive but it demonstrates the importance of taking into account contextual and situational aspects.

Empathy in video games

Against the backdrop of the behavioral effects of video games and empathy, it is surprising that only recently empathy was introduced into the field of video game research (e.g., Bartholow, Sestir & Davis, 2005; Hartmann, Toz, & Brandon, 2010; Konijn, Nije Bijvank, van der Heijden, Walma van der Molen, & Hoorn, 2008). The level of trait empathy in gamers, for example, has been added to the variables moderating the negative effects of violent video games (e.g., Calvert et al., 2006). Games have also been used successfully to foster empathy in players (e.g., Belman & Flanagan, 2009).

As empathy includes perspective taking, the function of identification with a certain game character is clearly relevant. Huesmann, Moise-Titus, Podolski, and Eron (2003) showed, for example, that identification with aggressive TV heroes is linked to later aggressive behavior of the adult subjects. Even though the first-person perspective in violent games requires players to take the perspective of the violent protagonist, only few studies (e.g., Schneider, Lang, Shin, & Bradley, 2004) have investigated the effects of identifying with violent video game characters. Putting oneself into the shoes of an

aggressive character is known to stimulate violence (Konijn, Nije Bijvank, & Bushman, 2007) and to prime aggressive cognition (Peña, Hancock, & Merola, 2009).

Nonetheless, as empathy reduces negative effects in violent real world settings (e.g., Miller & Eisenberg, 1988), similar effects are to be expected in virtual environments (see Hodson, Choma, & Costello, 2009). Indeed, shifting the focus towards the victim character in violent media reduces general violence acceptance (Nathanson & Cantor, 2000) and aggressive behavior and even has prosocial effects (e.g., Konijn et al., 2008). As empathy may backfire depending on the interaction of game character and the empathy players feel for them, the role of one's character is important (e.g., hero vs. villain; Happ, Melzer, & Steffgen, *in press*). In addition, empathetic players object unjustified violence against another virtual character (Hartmann et al., 2010).

As video games are both real and fictional at the same time (Juul, 2005) and hold elements of both storytelling and game, they are fundamentally distinct from other means of narrative (e.g., film, books, and television; Dillon, 2005). While players control both avatars and event outcomes, theater audiences and readers of novels are only able to witness characters' experiences in situations and events. Here it is necessary to distinguish the constructs of role-playing (as a character), role taking (e.g., Coutu, 1951), and identification (Klimmt, Hefner, & Vorderer, 2009). While role taking is clearly related to empathy, role-playing, even though it requires one to take a role (Puri & Pugliese, 2012) bears no necessary relation to empathy (Coutu, 1951). Video game identification on the other hand means both adapting to fixed attributes of a character but also changing some attributes through individual decisions (Klimmt et al., 2009). Feeling empathy while playing a video game character, however, has often been questioned (D'Aloia, 2009) but rarely been tested (e.g., Jin, 2011). Gamers prefer those games that provide opportunities for immersion and that allow them to become the main character or empathize with other characters in the narrative (Annetta, 2010). Identification with a character may both foster

and reduce aggressive tendencies depending on the particular role of the player in the video game. For example, identification with the aggressor may have opposite effects than empathy for the victim (Happ et al., *in press;* Konijn et al., 2007). Therefore, we suggest that empathy and identification with a game character moderate the effects of antisocial and prosocial media on subsequent user behavior.

The present research

As prosocial and antisocial video games have opposite effects on aggression and prosocial behavior, it is most efficient to directly compare both game types. Furthermore, including empathy helps to further clarify its role as a potentially moderating factor. Empathy may either serve as a general buffer against the negative consequences of antisocial games on following behavior and cognitions, or it may have differential effects depending on whether the game provided positive or negative learning content.

Study 1: Prosocial vs. antisocial game with direct empathy induction

Based on the findings mentioned above, playing a prosocial video game should lead to less antisocial and more prosocial behavior compared to playing an antisocial video game. Additionally, reading a newspaper article before playing, which proposes that focusing on empathy in games has beneficial effects, should lead to stronger empathetic reactions, less antisocial behavior, and more prosocial behavior compared to reading a neutral text. More precisely, positive behavioral effects should occur from empathy shifting participants' attention towards emotions in the game without encouraging identification with the violent avatar. In other words, it was tested (1) whether empathy can boost the positive effects of a prosocial video game, and (2) whether empathy may compensate for the negative effects of playing an antisocial video game.

Hypotheses

1. Playing a prosocial video game leads to more prosocial and less antisocial behavior compared to playing an antisocial video game.

2. An empathy induction before game play reduces antisocial and enhances prosocial behavior after both a prosocial and an antisocial video game

Method

Eighty university students participated in this study (55% females, M_{Age}=23.4, *SD*=4.37). Participants reported low general video game use (*M*=0.9, *SD*=1.05, with 0=*never* to 4=*often*).

Independent variables

According to the 2 (type of text: empathy vs. neutral) by 2 (type of game: prosocial vs. antisocial) study design, participants were randomly assigned into one of the four groups. All participants read a bogus newspaper article on the beneficial effect of video games on memory. Presenting pregame narratives has been successfully shown to ameliorate the deleterious effects of violent games on behavior (Jin, 2011). In the neutral condition, no further information was given. In the empathy condition, however, the newspaper article explicitly attributed the memory effect to emotional involvement and empathy of players in video games. This information was meant to enhance the awareness of participants for emotions, thereby inducing empathy in the following game phase. As a manipulation check, participants' awareness of their empathy-related text was tested through a memory task at the end of the experiment. Among other words, participants were asked if the word "empathy" was included in the bogus newspaper text (yes/no decision). After the empathy manipulation and a training phase of five minutes, participants used the Nintendo Wii® game console for 15 minutes to play either the prosocial video game *Trauma Center 2: New*

blood (Atlus U.S.A., Inc.) or the antisocial video game *Manhunt 2* (Rockstar Games) in which the player has to kill other in-game characters to escape from an asylum. As in *Trauma Center 2* players take the role of a surgeon trying to save other game characters' lives by performing surgery, it can be considered prosocial. Both games involve explicit portrayals of blood and wounds, but differ substantially regarding their respective goals.

Control Variables

The first questionnaire before manipulation included a number of demographic measures (e.g., age, gender) and personality traits to make provision for individual differences that may potentially have an impact on aggression-related outcomes (e.g., Krahé & Möller, 2010). Participants' current mood was assessed with the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) that was administered both before and immediately after game play. Participants rated their positive and negative affect with ten items each (e.g., "enthusiastic", "inspired", "upset", "distressed"). Also in the first questionnaire, participants' level of trait empathy as a time-invariant individual disposition was measured with the shortened version of the Interpersonal Reactivity Index (12 items; IRI, Davis, 1983; German translation by Paulus, 2009). Items were used from three subscales (perspective taking, empathic concern, and fantasy empathy; e.g., "I often have tender, concerned feelings for people less fortunate than me."). Analysis revealed a good overall reliability, so a sum score was used. Participants' level of trait aggression was tested using the two subscales anger and physical aggression from the Aggression Questionnaire (14 items; AQ; Buss & Perry, 1992; e.g., "I have threatened people I know."). Based on a good overall reliability a sum score was used. Table 1 illustrates the measures of the relevant scales (means, number of items, and internal consistencies). Finally, participants indicated their media use, general game expertise, and familiarity with the game and the game console.

Dependent variables

After game play, participants indicated their ratings of the game (e.g., handling, fun, content) on a 4-point-likert scale (from 0=*totally disagree* to 3=*totally agree*). Next, participants were told that the experiment was now over but they were allowed to take one item as reward for their participation from a bowl outside the lab (either a pen or a piece of chocolate). Participants were explicitly told not to take more than one item per person, and if they took more there would not be enough for the other participants. For every participant the bowl was filled with 25 pens and 25 pieces of chocolate, that is, 50 items. After participants had left, pens and chocolate were counted. If more than one piece was missing (irrespective of whether it was a pen or a piece of chocolate) this was considered antisocial behavior. On average, participants took about one item more than allowed (M=1.04; SD=1.24; see Table 1).

Finally, before participants left the lab, they were handed an envelope and told that it contained an additional questionnaire for a different study, but its completion would be optional and not controlled. Returning the additional bogus questionnaire within one week served as a dichotomous measure of prosocial behavior (yes/no).

Insert Table 1 here

Results

The level of significance was set at α=0.05 and one-sided testing was applied for all directional hypotheses.

Manipulation Check

As expected, the antisocial video game *Manhunt 2* was rated significantly more aggressive (*M*=2.44, *SD*=0.78) than *Trauma Center 2* (*M*=0.18, *SD*=0.45; *t*[65]=16.0, *p*<.001, *d*=3.55).

Manhunt 2 was also rated significantly less prosocial (M=0.37, SD=0.54) than *Trauma Center 2* (M=2.13, SD=0.98; t[58]=-9.92, p<.001, d=2.22). As 39% of the participants in the empathy group claimed to remember the word "empathy" (even though not explicitly stated in the text), it appears that the text forms differed with regard to their empathetic message (neutral text group: M=5%; χ^2[1]=13.17, p<.001, d=0.89).

The two games were expected to be similar regarding handling and perceived enjoyment. Handling was rated similar in both conditions ($M_{\text{Antisocial}}$=1.61, SD=0.70 vs. $M_{\text{Prosocial}}$=1.62, SD=0.81; t[78]=0.03, p>.05) but the prosocial game was found significantly more enjoyable ($M_{\text{Prosocial}}$=1.85, SD=0.70) than the antisocial game ($M_{\text{Antisocial}}$=1.19, SD=0.81), t[78]=-3.96, p<.001, d=0.87). No other variable (e.g., age, trait empathy, trait aggression) differed significantly between groups (all p>.05). Additionally, to make sure potential behavioral effects were not due to frustration (see Adachi & Willoughby, 2011; Williams, 2009), participants had to indicate their level of frustration after the game. Here, no difference was observed between the prosocial (M=0.82, SD=0.94) and the antisocial game (M=1.24, SD=1.01; t[78]=1.92, p>.05). As neither the two empathy nor the two content conditions differed regarding positive (F[3,76]=0.26, p>.05) or negative affect before the game (F[3,73]=1.84, p>.05), differences in the PANAS between groups after game play can be compared. Here, participants playing *Trauma Center 2* showed more positive affect (M=2.12, SD=0.79) and less negative affect (M=0.35, SD=0.34) than participants playing *Manhunt 2* (M_{Pos}=1.77, SD=0.66; t[78]=-2.14, p<.05, d=0.48; M_{Neg}=0.79, SD=0.81; t[54]=3.20, p<.01, d=0.71). To ensure that other results were not affected by these post game differences, additional analyses used enjoyment and positive and negative affect as covariates (i.e., ANCOVA), as both variables did not mediate the effects for any dependent variable (all p>.05). However, including these covariates did not change the results in all ANOVAs that followed. No gender effects were observed with regard to dependent variables (all p>.05).

Video game effects

As expected (Hypothesis 1), playing the prosocial game ($M_{Prosocial}$=0.77, SD=0.96) led to less antisocial behavior than the antisocial game ($M_{Antisocial}$=1.29, SD=1.42), as indicated by the number of items taken without permission, F[1,76]=3.47, p<.05, η^2=.04 (see Figure 1). Additionally, playing the prosocial game ($M_{Prosocial}$=31%) also led to more prosocial behavior than the antisocial game ($M_{Antisocial}$=10% helpers), as indicated by the number of returned bogus questionnaires, χ^2[1]=5.52, p<.05, d=0.70 (see Figure 2). Odds ratio (OR) indicated that participants were 4.11 times more likely to act prosocially if they had played the prosocial video game than if they had played the antisocial game. In other words, people playing the prosocial *Trauma Center 2* were more likely to take just the amount of reward they were allowed and showed a higher return rate for the bogus additional questionnaire.

Insert Figure 1 here

Additional effect of the empathy induction

The empathy text had no additional effects with regard to antisocial behavior (Hypothesis 2). This was true both for the prosocial game conditions ($M_{Neutral}$=0.80, SD=1.11 vs. $M_{Empathy}$=0.74, SD=0.81; p>.05) and the antisocial video game condition ($M_{Neutral}$=1.11, SD=1.05 vs. $M_{Empathy}$=1.46, SD=1.68; F[1,76]=0.56, p>.05), even though empathy seemed to somewhat encourage antisocial behavior in this condition. In contrast to expectations, the empathy text had similar differential effects with regard to prosocial behavior, depending on game conditions (Hypothesis 2). For prosocial behavior a three-way loglinear analysis was calculated with the final model retaining all effects. The likelihood of this model was χ^2(0)=0, p=1. To break down this effect separate χ^2-tests were performed separately for participants in the neutral and the empathy condition. While game type had no influence

on prosocial behavior after reading the neutral text ($M_{Antisocial}$=15.8% vs. $M_{Prosocial}$=25% helpers; $\chi^2[1]=0.51$, $p>.05$), the empathy text affected the decision to return the questionnaire significantly ($M_{Antisocial}$=4.5% vs. $M_{Prosocial}$= 36.8% helpers; $\chi^2[1]=6.77$, $p<.05$, d=0.61, see Figure 2). Participants were 12.25 times more likely to act prosocially if they had played the prosocial video game. Planned contrasts revealed a significant difference between the relevant group ($M_{Empathy/Antisocial}$=4.5%) and all other groups ($M_{all\ other\ groups}$=25.9%; $\chi^2[1]=4.53$, $p<.05$, d=0.49). OR indicated that prosocial behavior was 7.32 times more likely if participants did not play the antisocial video game after reading the empathy text.

Insert Figure 2 here

Discussion

The goal of the study was to test for ecologically valid behavioral effects of empathy induction in different video game contexts. In line with Hypothesis 1, the results show that playing a game with prosocial content has different behavioral effects compared to playing a game with antisocial content. Helping in video games seems to encourage helping in real life (i.e., filling in an additional questionnaire that was not part of the study) and to reduce antisocial behavior (i.e., stealing). On the other hand, a short sequence of antisocial violent game play was once again shown to influence behavior and affect in a negative way. However, it is necessary to include a neutral game condition in future research to interpret the direction of effects. Without this condition, the found differences could be due to the prosocial effects of the prosocial condition, the antisocial effects of the antisocial condition, or a combination of both.

Hypothesis 2 looked at whether encountering empathy-related information before playing a video game play affects participants' later behavior. Only after reading the

empathy text the game condition mattered. However, the results were not straightforward: When empathy was induced in the antisocial video game condition, participants were 7.32 times less likely to help than in all other conditions. A similar pattern was observed for antisocial behavior, although this effect failed to reach the level of significance.

We may speculate that this counterintuitive finding may be explained by the fact that raising participants' awareness for empathy in the text especially supported (or primed) empathy for the leading character (i.e., the protagonist) in the subsequent antisocial game. Even if they were not explicitly encouraged to do so, participants may have identified more with the mean character after being reminded to attend to their own feelings. It has already been shown that identification with a violent game hero increases aggression after playing a violent video game (Konijn et al., 2007). In addition, only 39% of participants in Study 1 "remembered" the word "empathy". We may therefore speculate that the text only evoked emotional feelings in general, rather than empathy in particular. Therefore it needs to be tested if a clearer (empathy and not identification) and more effective empathy induction will produce stronger effects. Future games should be matched on more characteristics, most importantly on excitement or arousal levels, to increase comparability between the antisocial and prosocial video game condition (see Bushman, 1998). In contrast to other studies (e.g., Krahé & Möller, 2010), the inclusion of various covariates did not significantly change the patterns of effects in the present study. However, the fact that the prosocial game was found significantly more enjoyable than the antisocial game is a major threat to validity (see Adachi & Willoughby, 2011), as the effects might be attributed to other factors than the content of the game (i.e., perceived enjoyment). Therefore, the same video game was used for all participants in Study 2.2. Using the same game also helps to avoid the problem that the two games differed regarding its influence on participant's affect in Study 1.

Study 2: Perpetrator vs. victim in an antisocial game with indirect empathy induction

With regard to playing violent video games, results from Study 1 indicated that inducing empathy by means of a fictitious newspaper article led to unexpected results in the antisocial game condition. This was further scrutinized in Study 2, in which we tested the effects of empathy using only an antisocial violent video game.

Due to the low impact of the empathy manipulation in Study 1, we used a more vivid form of empathy induction, namely a short movie clip that showed a violent perpetrator and his victim who are also the main protagonists in the antisocial video game played afterwards. Movies are known for the exceptional emotional effects they have on their recipients (e.g., Gross & Levenson, 1995). Due to the fact that the video clip also transports a moral conflict and that video games are capable of inducing moral responses in the players (e.g., Gollwitzer & Melzer, 2012; Hartmann et al., 2010), the effect of inducing empathy for the virtual opponent was tested in Study 2. Empathy was expected to be higher in participants who had watched the empathy clip than for those who had watched the neutral clip. However, empathy for an opponent should be highest when violence is not morally justified (see Hartmann et al., 2010), which is the case in Study 2 for participants who played the perpetrator. Which character is played should also have behavioral consequences: the positive effect empathy generally has (i.e., to foster prosocial behavior and to decrease aggression) should be highest when playing the sympathetic victim.

Hypotheses

1. Compared to the a neutral clip, an empathy-stimulating video clip before playing a video game leads to more affective concern during and less antisocial and more prosocial behavior and more affective concern after the game.

2. Regarding interactions, the following outcomes are expected:

a) Compared to all other groups, pity on the opponent and affective concern are highest for those participants who had watched the empathy clip and then played the perpetrator.

b) Compared to the neutral condition, inducing empathy reduces antisocial behavior and fosters prosocial behavior when playing the sympathetic victim character from the previous movie clip. However, when playing the character of the perpetrator from the previous clip, empathy increases antisocial behavior and reduces prosocial behavior, compared to the neutral condition.

Method

Eighty university students (M_{Age} =21.8, *SD*=3.2, 58% psychology) participated in the study. 69% of the participants were female; this ratio was equal in all groups. The general video game use was low (*M*=2.1, *SD*=0.89, with 1=*never* to 4=*often*). According to the 2 (movie clip: empathy vs. neutral) by 2 (character: victim vs. perpetrator) study design, participants were randomly assigned to one of four groups. Following questions on demographics, participants either watched the empathy clip (a 2-minutes excerpt from "Street Fighter–The Legend of Chun-Li", 20th Century Fox Film Corporation) or a 2-minute neutral clip (excerpt from "The Last Emperor", Columbia Pictures). The latter has been identified as being emotionally neutral (Hewig, Hagemann, Seifert, Gollwitzer, Naumann, & Bartussek, 2005). The empathy clip showed a dramatic sequence in which the female protagonist witnesses her father being hit and kidnapped by a male villain. After a short five-minute training phase, participants then played either the victim or the perpetrator from the movie clip in the corresponding antisocial and violent beat-'em-up video game *Streetfighter IV* (Capcom) using the Sony PlayStation©3 console for 15 minutes. In contrast to the movie clip, there is no obvious inequality in strength of the two game characters.

Control Variables

The same demographic measures were controlled for as in Study 1 (PANAS, IRI, AQ, media use; see Table 2).

Dependent variables

After game play participants indicated in two items (a) how much pity they felt on their (computer-controlled) opponent in the game (i.e., "I felt pity on the character I was fighting against."), and (b) their level of affective concern (i.e., "I felt bad when fighting the other character."), which is one of the components of empathy. Antisocial behavioral intentions were measured with two scenarios (e.g., "Someone is spilling his drink on you. How do you react?"). In these scenarios participants rated how likely it was for them to be react angrily in given provoking situations. Higher ratings on 4-point scales indicated stronger affirmation in all items. Afterwards, participants were thanked for their assistance and given 5 Euros in coins as remuneration. Before they left the lab, they were told that there was a donation box outside the lab and that they were free to anonymously donate some money for a child cancer aid organization. The average of donated money in this study was M=1.76 Euros. However, a Kolmogorov-Smirnov test indicated that this measure of prosocial behavior was non-normal ($D(80)=1.71$, $p<.01$). Therefore, this measure was discarded. Rather, whether or not participants donated was used as an indicator of prosocial behavior.

Insert Table 2 here

Results

As in Study 1, the level of significance was set at $\alpha=0.05$ and one-sided testing was applied for all directional hypotheses.

Manipulation Check

The empathy-inducing effect of the clip was confirmed by the fact that those who had seen the empathy clip felt significantly more pity on their opponent (M=3.55, SD=1.80) than those who had seen the neutral clip (M=2.90, SD=1.26, t[78]=1.88, p<.05, d=0.42). As expected, there was no difference in handling the game character of the perpetrator (M=2.85, SD=0.74) and the victim (M=2.80, SD=0.72; t[78]=0.31, p>.05). There was also no difference with regard to overall game enjoyment ($M_{\text{Perpetrator}}$=2.46, SD=0.69 vs. M_{Victim}=2.25, SD=0.81; t[78]=1.26, p>.05). In addition, groups did not differ significantly with regard to all other variables (e.g., PANAS, age, trait empathy, trait aggression, success in the game).

To control for the effect of a male character (i.e., the perpetrator) fighting a female character (i.e., the previous victim), only the two neutral clip conditions were compared with regard to pity on the opponent ($M_{\text{Perpetrator}}$=1.60, SD=0.82 vs. M_{Victim} =1.50, SD=0.83; t[38]=0.38, p>.05) and affective concern $M_{\text{Perpetrator}}$=1.50, SD=0.76 vs. M_{Victim} =1.20, SD=0.41; t[29]=1.55, p>.05). Apparently, the gender of game characters did not play a role. Also, for all dependent measure, gender of participants did not play a mediating role (all p>.05).

Empathy-clip effects

Regarding Hypothesis 1, findings were in line with our expectations. The empathy clip had an effect on prosocial behavior, which approached significance. When watching the empathy clip 85% of the participants decided to donate, while in the neutral clip condition only 68% of the participants donated. OR indicated that participants were 1.25 times more likely to act after watching the empathy clip. However, the advantage for the empathy condition was only marginally significant (χ^2[1]=3.38, p=.06, d=0.42, see Figure 3).

The results for affective concern were also in line with our hypothesis: Participants

in the empathy clip condition reported more empathy (M=1.80, SD=0.88) than in the neutral condition (M=1.35, SD=0.62; t[70]=2.64, p<.05, d=0.59).

Insert Figure 3 here

Additional effect of the empathy induction

Hypothesis 2a stated that pity on the opponent and affective concern should be highest for participants who had watched the empathy clip and then played the perpetrator. We found a main effect of empathy induction for both pity on the opponent (M_{Empathy}=3.55, SD=1.80 vs. M_{Neutral} =2.90, SD=1.26; F[1,76]= 3.93, p<.05, η^2=.04) and affective concern (M_{Empathy}=1.80, SD=0.88 vs. M_{Neutral} =1.35, SD=0.62; F[1,76]= 7.75, p<.01, η^2=.08). A planned-contrast analysis revealed that participants who had watched the empathy clip and then played the perpetrator reported more affective concern (t(23)=3.14, p<.05, d=0.81) and showed more pity than all other groups (t(24)=32.38, p<.05, d=0.61).

With regard to aggression (Hypothesis 2b), the expected significant interaction was observed (F[1,76]=4.66, p<.05,η^2 =.06): In the empathy condition, less antisocial behavioral intentions were shown when playing the victim (M_{Empathy}=2.01, SD=0.33 vs. M_{Neutral}=2.23, SD=0.46). In contrast, watching the empathy clip increased antisocial behavioral intentions when playing the perpetrator (M_{Empathy}=2.20, SD=0.38 vs. M_{Neutral}=2.04, SD=0.37; see Figure 4).

Insert Figure 4 here

To analyze prosocial behavior, a three-way loglinear analysis was calculated, which produced a final model that retained all effects. The likelihood of this model was $\chi^2(0)=0$, p=1. To break down this effect separate χ^2-tests were performed for those participants

playing the victim and those playing the perpetrator. While the empathy clip had no influence on prosocial behavior in the perpetrator condition *(*$M_{Empathy}$=80% vs. $M_{Neutral}$=70% donators), participants donated more after playing the victim character of the movie clip ($M_{Empathy}$=90% *vs.* $M_{Neutral}$=65%), although this was only marginally significant (χ^2[1]=3.58*, p*=.06*, d*=0.43, see Figure 3). OR indicated that participants were 1.38 times more likely to act prosocially if they had watched the empathy clip before playing the victim. Planned post-hoc contrasts revealed that the difference between the relevant group ($M_{Empathy/Victim}$=90%) and all other groups ($M_{all\ other\ groups}$=71.7%) approached significance (χ^2[1]=2.78*, p*=.08*, d*=0.38). Being in that group enhanced the probability of donating 1.26 times (OR).

Discussion

In this second study, hypotheses were largely confirmed indicating that inducing empathy by means of a short clip of only two minutes changed people's later perception of a violent game and affected their subsequent behavior. It was also found that if forced to play a mean character, a prior empathy induction leads to more antisocial behavior and less prosocial behavior, thus replicating the findings from Study 1 in the antisocial game condition.

Generally, the empathy-stimulating clip led to more prosocial behavior and more affective concern after game play. However, affective concern and pity on the opponent were highest when playing the perpetrator, indicating that particularly players in this group critically reflected their own behavior in the game (e.g., Hartmann et al., 2010). The empathy clip unequivocally presented the two characters as victim and perpetrator, thus making it unlikely that participants later showed empathy or pity on the perpetrator from the clip. Consequently, empathy had the expected positive effect on prosocial behavior when playing the victim but not when playing the perpetrator. A similar pattern was

observed for antisocial behavioral intentions: Compared to a neutral control condition the empathy clip decreased antisocial cognitions (i.e., antisocial behavioral intentions) when playing the victim, but led to an increase in antisocial cognitions when playing the perpetrator (see Happ et al., in press; Konijn et al., 2008). Overall, the internal validity of these results is higher than in Study 1 as the enjoyment did not differ between game conditions and cannot be considered as a confound. However, two findings regarding prosocial (donating) behavior only approached significance and therefore have to be interpreted with caution.

General Discussion

The present research findings raise questions about the differential effects of empathy induction on video game perception and subsequent behavior. It seems that empathy not always increases prosocial behavior. Rather, it may even *increase* antisocial behavior. In the two studies presented here, three major outcomes were observed:

(1) We replicated the well-documented effects of antisocial video games (e.g., Anderson et al., 2010) and prosocial games on behavior (e.g., Greitemeyer, 2011). In Study 1 we found that exposure to antisocial video games may be a cause negative affect, increase aggressive behavior and decrease prosocial behavior, whereas exposure to media with prosocial content increases helping behavior and decreases aggression. Our findings extend the literature by testing prosocial and antisocial behavior within a single study, using real-life dependent variables of high external validity (i.e., donating, stealing).

(2) Shifting the focus of gamers towards in-game emotions affects their perceptions (Study 2; e.g., empathy in the game), thus replicating previous findings (e.g., Konijn et al., 2008). This suggests that when playing an avatar in a video game, one can still experience empathy for an opponent, and thus act more prosocially or experience a positive change in attitude towards others (e.g., Batson et al., 1997).

(3) The empathy text had a positive effect on behavior and behavioral intentions in the "good" condition (e.g., playing a prosocial game: Study 1; playing the victim: Study 2), whereas the opposite happened in the "bad" condition (e.g., playing an antisocial game: Study 1; playing a mean character: Study 2). This pattern, which was observed in both studies, it is at odds with the concept of empathy as a generally positively connoted helping tool that reduces aggression and fosters prosocial behavior. Instead, it seems that focusing on feelings when playing the "bad guy" primes antisocial behavior (Study 1 & 2) and reduces prosocial behavior (Study 1). This result is in line with earlier findings of higher identification with mean characters, which leads to more violence (e.g., Happ et al., in press; Peña et al., 2009). In this wishful identification situation, the player is highly motivated to imitate a particular behavior (Konijn et al., 2007).

The observed pattern of results, which was most pronounced in Study 2, appears to be complex and also including aspects of morality. In video games, moral decisions and behavior are perceived like in real interpersonal interactions (Weaver & Lewis, 2012). When playing the victim in Study 2, participants could transfer the empathy felt for the victim in the movie clip to the same subject in the subsequent video game. The behavior of the victim (i.e., violent revenge) is therefore morally within the boundaries of what is morally acceptable (Raney, 2011). Here the induced empathy is supported by the actions (i.e., fighting) of the player, namely taking revenge and restoring justice. Revenge, similar in real and fictional settings (Gollwitzer, Meder, & Schmitt, 2011), is more important to people than to compensate victims (Miller, 2001). After justice is restored people feel satisfaction, gratification, and relief (Gollwitzer et al., 2011). Accordingly, participants who had played the victim in Study 2 were less aggressive and showed more prosocial behavior. We speculate that in this group empathy serves as a temporary protective factor from violent video game effects (e.g., Anderson et al., 2010). When feeling empathy, however, the lack of justification for behaving aggressively may lead to cognitive dissonance (e.g.,

Abelson, 1968; Festinger, 1957) and moral conflict. In Study 2, this was true for participants who had to play the perpetrator and fight the victim, not being able to take revenge or experience satisfaction. Not surprisingly, this group showed more antisocial behavior after the game (see Study 1).

It is important to note that these seemingly surprising results cannot be sufficiently explained by cognitive dissonance alone. While participants´ pro- and antisocial behavior in Study 1 may be interpreted as a modification of one´s behavior as a result from cognitive dissonance (e.g., Baumeister & Heatherton, 1996), in Study 2, however, this explanation does not hold. Here aggressive behavior is justified for players of both game characters: In the game phase the perpetrator simply continues to act violently and the victim takes revenge on the perpetrator. So, even if this explanation is not sufficient for our data, clarifying the role of feelings like cognitive dissonance in video game research is an important endeavor for future research.

It is also unlikely that priming alone (e.g., Huesmann, 1998) caused the effects reported here. Priming occurs when people think, act, or feel in a manner consistent with situational cues without the intention to do so. In Study 1, effects may reflect general priming of aggression (by means of the game) and empathy (by means of the text). In Study 2, however, the preceding clip clearly identified the villain as a mean character; this primed negative thinking and increased the probability that a participant acted accordingly without conscious thought (Peña et al., 2009). Therefore, priming may only explain the perpetrator's greater antisocial behavior but not the victim's greater prosocial behavior in Study 2.

It is important to note that rather short-term effects were examined in the present study. According to the GLM, however, repeated encounters that affect internal variables (i.e., emotions, cognitions, and arousal) lead to the development and construction of knowledge structures and, thus, to changes in personality depending on the content of the

media (Buckley & Anderson, 2006). A similar mechanism is proposed both for negative and positive effects of media exposure on social behavior, as was observed in the present study. Clearly, longitudinal studies are needed to test for long-term effects.

Remarkably, all effects were observed following only 15 minutes of game time. We may speculate that if people repeatedly play video games over a longer period of time, prosocial and antisocial effects may be even larger (e.g., Anderson et al., 2010). Future research needs to examine the underlying processes *why* playing a sympathetic character in prosocial or antisocial video games increases empathy and decreases aggressive or antisocial behavior. Based on his studies, Greitemeyer (2011) proposes that the increased accessibility to prosocial or antisocial thoughts accounts for the effects of playing a prosocial video game on prosocial and antisocial behavior. Additionally, the role of personality traits needs to be explored. For example, high levels in personal distress, which is a self-focused emotion and part of human empathy (Davis, 1983), is known to motivate people to engage in prosocial behavior (see Batson, Fultz, & Schoenrade, 1987). This also refers to the role of identification with virtual characters (see Konijn et al., 2007). Whether identification serves as a state or trait variable in players and how it is different from empathy should be targeted in future research.

One of the potential critiques on this study is the low overall media use and the high rate of female participants (69%). Even though this was controlled for in the present study, females are generally higher in empathy (e.g., Davis, 1983). Therefore, future studies should test for gender-specific effects. Furthermore, some of the empathy induction effects reported here are only marginal which has to be kept in mind when interpreting the results. However, results might reach statistical significance with a larger sample. In addition, the behavioral intentions measured in the present study had only low reliabilities. Whether or not more reliable measures will lead to significant effects has to be confirmed in future studies. Finally, future studies should use comparable games regarding

game enjoyment. In our research, this was only true for Study 2, but not for Study 1. In Study 2, an emotion inducing and a neutral video clip were compared. The emotion-inducing clip may have also primed emotional responses only by its narrative (e.g., fighting). Therefore the clips should be matched on more characteristics (e.g., excitation, narrative) in prospect studies.

Future studies should also make sure that the empathy induction induces empathy (manipulation check), rather than simply making emotions more salient. Even though hard to establish in media effect research, this could be achieved by using a "true" empathy induction like the "Katie Banks Task" (Batson, Early, & Salvarini, 1997), as this includes a "real" person, for whom participants may actually feel empathy. These results suggest that emotions, at least similar to those involved in empathy, may be induced in the video game context (see also Annetta, 2010). However, other authors doubt that the induction of empathy is possible at all (e.g., D'Aloia, 2009). In contrast to emotions in games as well as identification and immersion that are all well-studied (e.g., Klimmt et al., 2009), empathy in video games, including cognitive and affective perspective taking, needs more research in the future.

A rather novel approach presented here was the use of dependent variables of direct behavior as ecologically valid methods. Measuring donating behavior as indicator for prosocial behavior and stealing as indicator for antisocial behavior are rarely used in the field of media effects research (e.g., Ritter & Eslea, 2005). However, when interpreting media effects, a behavioral baseline is essential. Therefore, future studies should include a neutral game condition.

In conclusion, the present research tested in two studies the differential effects of empathy after playing a video game. Video games are capable of inducing affective moral responses in users (see Hartmann et al., 2010), thereby also affecting participants' behavior. As antisocial thinking and aggression is likely to hurt interpersonal and

intergroup relations generally, the present results underline that media exposure may have harmful as well as beneficial effects on social relations. Regarding the fact that empathy may evoke helping behavior, however, the present finding also illustrates that playing prosocial video games and increasing empathy for victim characters in antisocial games can contribute to more positive social interactions. When playing antisocial or even violent games, however, simply shifting the focus towards feelings in the video game in general may even foster empathy for the violent hero and therefore to even unwanted effects. In accordance with recent findings in the literature (Hartmann et al., 2010), whether or not the player is able to act according to his or her moral standards in the video game appears to play a crucial role.

Further research in this field is needed, as these developments challenge the conventional handling of prosocial and antisocial media content and its overly simplistic division into good and harmful.

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Figure Captions

Figure 1. Number of stolen items (antisocial behavior) in the violent and the prosocial video game condition.

Figure 2. Percentage of returned questionnaires (prosocial behavior) as a function of text and game type.

Figure 3. Percentage of donations (prosocial behavior) as a function of video clip and game character.

Figure 4. Aggressive behavioral intentions (min= 1, max=4) as a function of video clip and game character.

Table Captions

Table 1. Measures of the relevant scales in Study 1.

Table 2. Measures of the relevant scales in Study 2.

Figure 1. Number of stolen items (antisocial behavior) in the violent and the prosocial video game condition.

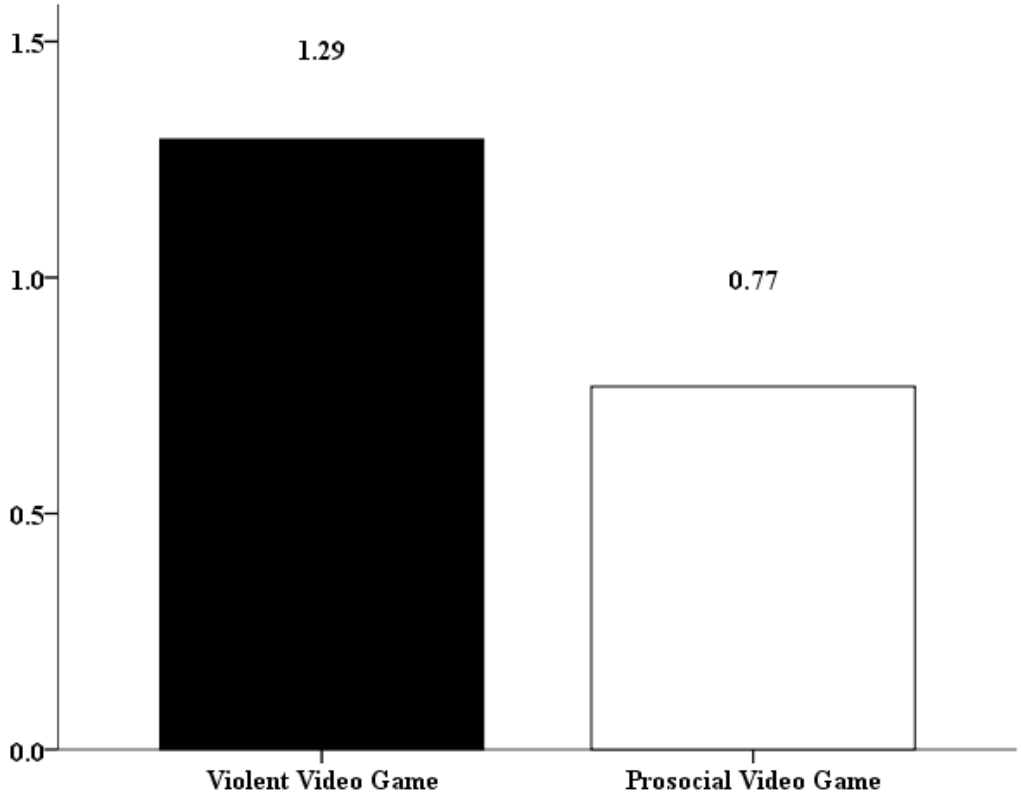


Figure 2. Percentage of returned questionnaires (prosocial behavior) as a function of text and game type.

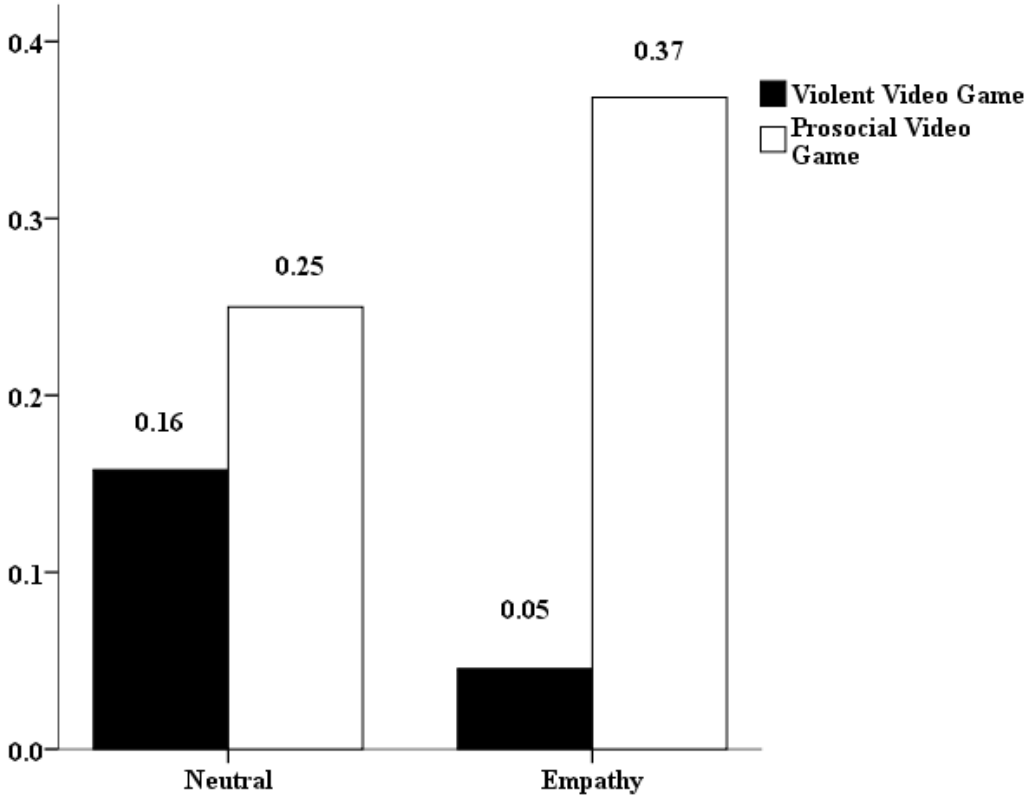
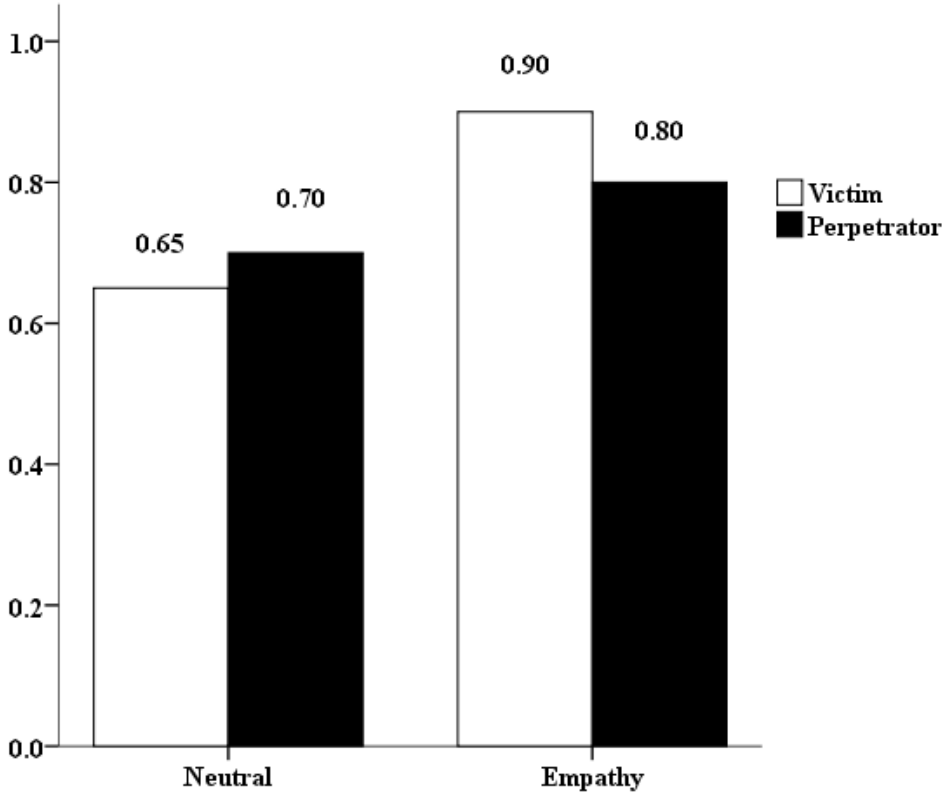


Figure 3. Percentage of donations (prosocial behavior) as a function of video clip and game character.



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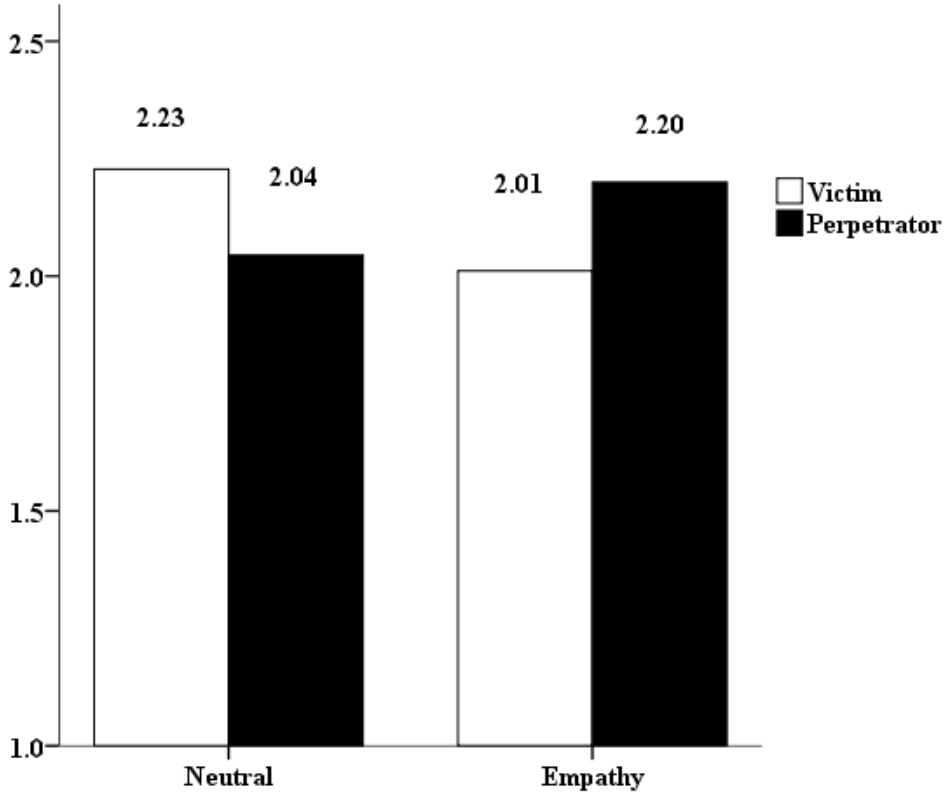

Table 1. *Measures of the relevant scales in Study 1*.

Measure	No. of items	Scale	α	Item-M	SD
Positive Affect – t1	10	0-4	.84	1.70	0.62
Negative Affect – t1	10	0-4	.81	0.25	0.27
Positive Affect – t2	10	0-4	.89	1.93	0.74
Negative Affect – t2	10	0-4	.91	0.58	0.66
Interpersonal Reactivity Index	12	0-3	.74	2.02	0.33
Aggression Questionnaire	14	0-3	.84	0.91	0.46
Prosocial behavior	1	/	/	0.20	/
Aggressive behavior	1	/	/	1.04	1.24

Table 2. *Measures of the relevant scales in Study 2.*

Measure	No. of items	Scale	α	Item-M	SD
Interpersonal Reactivity Index	12	1-4	.73	3.00	0.34
Aggression Questionnaire	14	1-4	.77	1.84	0.35
Aggressive behavior (vignettes)	9	1-4	.75	2.88	0.39
Prosocial behavior	1	/	/	0.76	/

Manuscript #2

Superman vs. BAD man? – Empathy and game character influence the effects of violent video games

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University of Luxembourg

Paper submitted: December 10, 2012; Cyberpsychology, Behavior, and Social Networking

ABSTRACT

Recent findings indicate that events in video games as well as players' perceptions of game characters moderate well-established video game effects. This includes the level of identification with game characters, and players' interpretation of whether or not the actions of the characters are conceived as moral. In the present study, it was tested whether manipulating empathy for well-known game characters influences video game effects in a violent beat-'em-up game. As was expected, playing the comic hero Superman led to more prosocial behavior (i.e., returning a lost letter) than playing the evil villain Joker. A similar positive effect was observed for inducing game characters as warm and empathic before playing. Compared to a neutral text, participants in the empathy text condition judged the violence in the game as less justified, irrespective of game character. When looking at hostile perception, an interaction was found between empathy and game character. For Superman, empathy led participants to interpret neutral faces as less aggressive. When playing the evil Joker, however, empathy even increased hostile perception. This is in line with previous findings that empathy may not be positive per se. In fact, it may backfire depending on the interaction of game characters and the empathy players feel for them.

INTRODUCTION

Violent Video Games and Identification

Video games have become an integral part of our daily lives. Playing video games has become mainstream, and interacting with virtual agents may even trigger psychological reactions similar to those in interactions with humans.[1] Numerous studies have shown that playing violent video games has negative effects on cognitions, emotions and behavior, including a decrease in empathy and prosocial behavior and an increase in aggression.[2] In addition to the game content itself, however, identification with violent characters increase aggression both for watching TV[3] and playing video games.[4,5,6] The inherent characteristics of video games further support identification. Players may adopt novel identities, "try on" ideal characteristics,[7] share game characters' goals and experience their feelings, which may further intensify the perceived joy of playing the game.[6] Observing and modeling behavior, attitudes, and emotional reactions of others is an important aspect in social learning theory.[8] Through the process of wishful identification, which provides a glimpse of "what if…" players may perceive the character as a role model for their own future behavior.[4] This is further supported by the high degree of freedom of action in video games, including norm-breaking behavior (i.e., killing human characters), which otherwise leads to negative (social) consequences.[9]

As violence makes video games especially appealing[10] and with media frequently presenting violent "heroes",[11] the role of identification with a violent video game character[4] or feeling empathy for a violent character[12] are important aspects in explaining negative video game effects. So far, only few studies have directly compared the effects of video game characters[5,12] that differ with regard to users' perception of their morality (good vs. evil).[5,13,14] The present study was designed to close this empirical gap. Compared

to a positive hero character, playing the evil villain should therefore lead to more hostile perception bias and less prosocial behavior after the game (Hypothesis 1).

Empathy's role in media perception

Empathy, the ability to understand and share in another's emotional state or context[15], is often used in violence and aggression prevention as protective factor and educational instrument.[16] Empathy is also applicable to the fictional context (fantasy empathy[17]) and has been demonstrated to play an important role in media perception.[5,18,19] Shifting the focus towards a victim in a video game, for example, enhances empathy in players.[12] Based on these findings we expected in our study, that inducing empathy leads participants to perceive the violence in the game as less justified (Hypothesis 2).

Finally, it was expected that empathy induction has differential effects depending on the game character played. In line with recent findings,[5] empathy should reduce aggression and enhance prosocial behavior when playing a well-known, positively connoted comic character, while the opposite is expected when playing a famous villain (Hypothesis 3).

MATERIAL AND METHODS

Participants and design

Sixty undergraduate students (M_{Age}=22.13, *SD*=3.77, ranging from 17 to 37 years; 20 males) were randomly assigned to one of the four conditions in a 2 (*character:* Superman vs. Joker) by 2 (*induction:* empathy vs. neutral) between-subjects design.

Empathy induction

Similar to empathy manipulations in other studies,[20] half of the participants read a bogus Wikipedia article before playing the game, in which Superman was described as coming from a loving family, whereas the Joker was introduced as having had a violent childhood in which he suffered from his physically aggressive father. The other half read the neutral original version of this article describing their respective video game character. All participants provided correct answers to the two control questions that were presented at the end of the experiment, indicating that they had read the text carefully.

Control variables

Control variables that serve as potential moderators were assessed prior to the manipulation, including video game experience, familiarity with their game character, empathy (Interpersonal Reactivity Index[17]; α=0.83), and trait aggression (K-FAF[21]; α=0.92). After the game phase, participants indicated their perception of different aspects of the game, each tested with a single item (e.g., effort to win in the game).

Dependent measure

Hostile perception bias was measured with a face perception task using stimuli from the Karolinska Directed Emotional Faces database.[22] Participants were shown 16 matrices with 30 faces per matrix. Each matrix remained on the screen for 3 seconds. Six matrices contained only neutral faces, whereas the remaining 10 matrices showed up to 23 (or 77%) angry faces. Participants indicated their perceived level of aggression in the faces for each matrix (Likert-scale from 0 to 10). Matrices with angry faces were used only as fillers, because a hostile perception bias is defined as the tendency to interpret neutral

faces as hostile.[23] Matrices were presented in random order.

Prosocial behavior was measured with the "lost letter technique"[24] A fully stamped and addressed letter that was not mentioned in the instructions was placed on the floor outside the lab such that it could easily be detected. Picking up the letter and directly returning it either to the experimenter or the addressee (on campus) was counted as prosocial behavior. Finally, participants indicated their perceived level of how justified violence was by rating how much they agreed that the opponent in the game deserved being physically assaulted.

Procedure

After a first questionnaire with demographic and trait measures (see above) and after reading the bogus Wikipedia texts, participants played the violent beat 'em up game *Mortal Combat vs. DC Universe* on the Playstation 3© (Sony) against the opposite character (Superman or Joker) in a short training phase, and then against random nonplayer characters (NPC) for approximately 15 minutes. In the "easy" game mode that was used, the NPC was fighting back but could be defeated easily to prevent frustration in game novices. The Mortal Combat series is known for its high level of bloody violence and the simple game play that rewards hits and kicks as well as other physical attacks. Playing was followed by the second part of the questionnaire, which included the dependent variables. Finally, participants were remunerated and thanked. On their way out, participants passed the apparently lost letter lying on the floor outside the laboratory.

RESULTS

A series of 2 (character: hero vs. villain) by 2 (induction: neutral vs. empathy) between-subject ANOVAs was calculated for all relevant variables. Prosocial behavior was analyzed with Pearson's χ^2-test (dichotomous dependent variable: forwarding the lost letter or not). As effect size measure, η^2 will be reported indicating the percentage of the dependent variable's variance explained by the independent variables in the sample data.[25]

Manipulation check

As expected, there were no significant differences, main effects or interactions between the four experimental conditions with regard to control variables (e.g., handling), thus indicating that the random assignment to groups was satisfactory, *p*s>.05; *see Table 1*. Not surprisingly, however, the participants in the Superman condition (*M*=2.55, *SD*=1.30) were happier with their character (*M*=4.03, *SD*=1.32) than Joker players (*M*=2.83, *SD*=1.53), $F(1,55)=10.07$, $p<.01$, $\eta^2=0.15$, thus reflecting the well-established picture of the two characters as hero and villain respectively. In addition, there was also a trend for the empathy text to increase the (self-reported) effort to win when playing Superman but to reduce the effort when playing Joker, $F(1, 55)= 3.64$, $p=.06$, $\eta^2=.06$. In all following analyses these two variables as well as gender and age are controlled for, but yield not significant results in all anlyses.

- Enter Table 1 here –

Effects on dependent variables

Descriptive statistics of participants' scores on the dependent variables are shown in *Table 2*.

- Enter Table 2 here –

Effects of video game character on dependent variables

As expected, hostile perception bias was influenced by game character, $F(1,51)=8.40$, $p<.01$, $\eta^2=.12$. After playing the Joker ($M=2.33$, $SD=1.20$), neutral human faces were perceived as more hostile than after playing Superman ($M=1.69$, $SD=1.11$). Furthermore, analysis revealed that the character also significantly affected players' prosocial behavior, $\chi^2(1)=4.25$, $p<.05$. Odds ratio indicated that the letter was 6.2 times more likely to be picked up after playing Superman (20.7%) than after having played Joker (3.3%; *see Figure 1*).

- Enter Figure 1 here –

Effects of the empathy induction on dependent variables

Participants who read the empathic Wikipedia text reported that violence against their opponent in the game was less justified ($M=1.57$, $SD=0.94$) than those who read the neutral text ($M=2.38$, $SD=1.47$), $F(1,51)=4.85$, $p<.05$, $\eta^2=.32$.

Interaction effects on dependent variables

Empathy affected hostile perception bias differently depending on the character played in the game. While empathy had the expected ameliorating effect on hostile perception bias in the hero condition (Superman), players of Joker found neutral human

faces more aggressive after reading the empathic text, $F(1,51)=4.30$, $p<.05$, $\eta^2=.06$ (for the interaction, *see Figure 2)*. A simple effects analysis revealed that this interaction effect and the character main effect (Hypothesis 1) were both due to the difference between the two empathy groups ($M_{Joker}=2.61$, $SD=1.04$ vs. $M_{Superman}=1.44$, $SD=1.00$, $F(1,24)=9.49$, $p<.01$, $\eta^2=.27$), but not between neutral conditions ($M_{Joker}=2.04$, $SD=1.31$ vs. $M_{Superman}=1.93$, $SD=1.20$, $F(1,23)<1$, $p>.05$). No significant interaction was found for prosocial behavior ($p>.05$).

- Enter Figure 2 here –

DISCUSSION

This study examined the effects of the moral nature of a character (good or bad) in a violent video game on the player. In addition, it was tested whether the induction of empathy has moderating effects. Participants who played the hero character (Superman) showed more helping behavior and less hostile perception bias than those who played the evil Joker. It also further supports that well-known icons of pop-culture have strong effects on both media users' perceptions and behavior.[26] This is in line with earlier research showing that if players act in congruence with their idealized heroes, they experience satisfaction.[27] Most interestingly, however, empathy was found to have differential effects on cognitions in both character conditions. In the present study, empathy in the hero condition revealed its well-known positive powers found with real and fictional violence.[28] In contrast, empathy with the violent Joker increased the negative violent video game effects[2] on cognition. Hence, empathy may backfire depending on avatar characteristics in video games, which is in line with earlier studies.[5,29]

With regard to the mechanism underlying these differential effects, we may speculate that for the Joker character the adverse effect of empathy is likely to result from reading the story about his violent childhood. This affected moral concerns because it provides an excuse for his later deeds as a "victim of circumstances", resulting in participants' greater acceptance of violence in the game as justified. When violence is morally justified, aggression is disinhibited.[30] Research has shown that this also applies to violent video games.[6] In the present study, disinhibition of aggression was observed as a pronounced hostile perception bias—neutral faces were perceived as angry and aggressive. It remains to be tested whether these adverse effects of empathy will also be effective when coupled with unfamiliar game characters or characters that are not perceived as morally biased.

Future studies should test an alternative explanation of the mechanism underlying empathy induction. In the present study, we cannot rule out the possibility that the increase in aggression was due to empathy changing the level of identification with the game character[4] rather than affecting (only) moral concerns. With respect to limitations, it should be noted that in the present study most participants did not play video game on a regular basis (M=2.07, SD=1.03, scale from 1-4). Future studies should include more habitual gamers to further understand the processes underlying the effect.

In conclusion, this study demonstrated that empathy might serve as an amplifier for already established attitudes that affect cognition. However, this amplifying effect holds for both characters, thus widening the gap between "good" and "evil". Loaded with a positive background story, empathy boosts positive effects. Loaded with a violent or negative story, however, empathy may even worsen the consequences of playing a violent video game, potentially by providing an excuse for acting violently. It therefore seems necessary to carefully decide when (or for whom) perspective taking might be beneficial and when it

might have dangerous consequences.[6] As media violence is suspected to lead to a violent and desensitized personality in the long run,[31] a closer analysis of the presentation and choice of video game characters becomes increasingly important. Future research should not only study the violent content of games, but also the role of empathy, its mechanisms, and how it may be used to induce positive and long-lasting behavioral effects that might even lead to beneficial changes in personality.[32]

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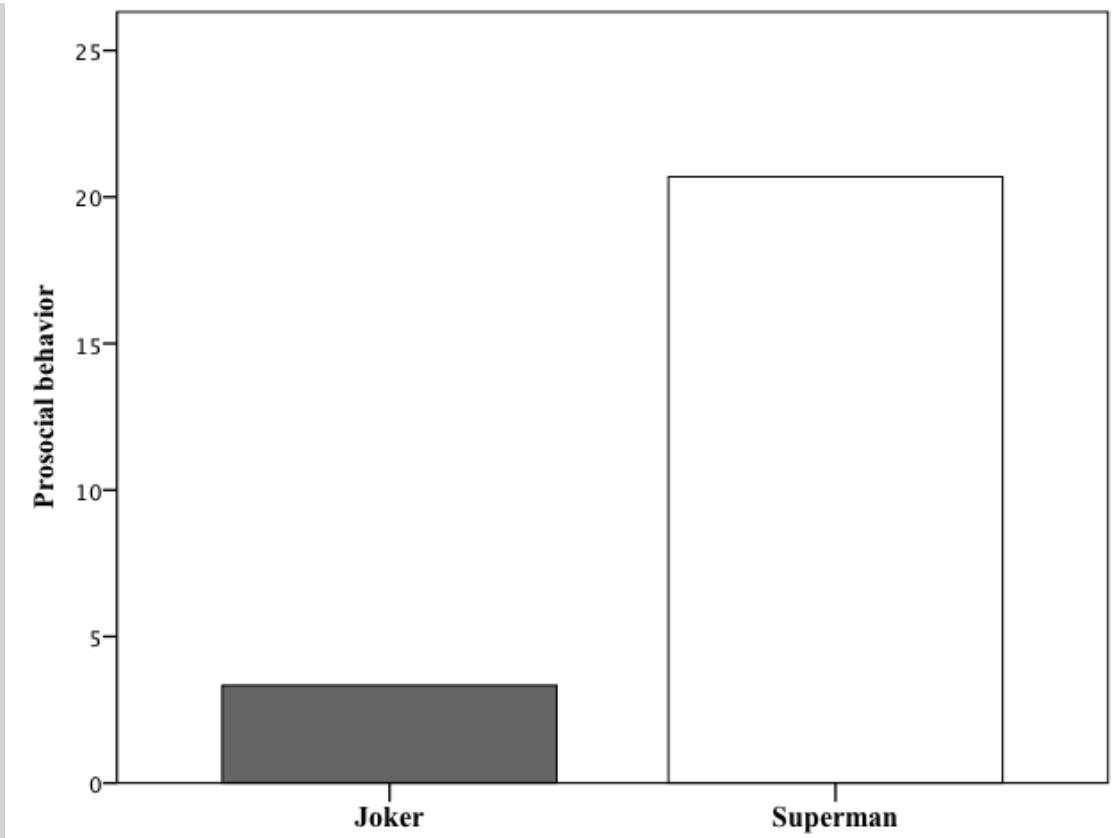
TABLES AND FIGURES

Table 1: Means and standard deviations (in parentheses) of control measures (on a scale from 1 to 5 with high numbers indicating high approval)

Table 2: Means and standard deviations (in parentheses) or percentages of the dependent variables

Figure 1: Proscocial behavior (picked-up lost letter) for participants who had played Joker or Superman (in %)

Figure 2: Hostile perception bias for participants playing Joker or Superman as a function of having read the empathy or the neutral text. Error bars indicate +/- 2 standard error of the mean.



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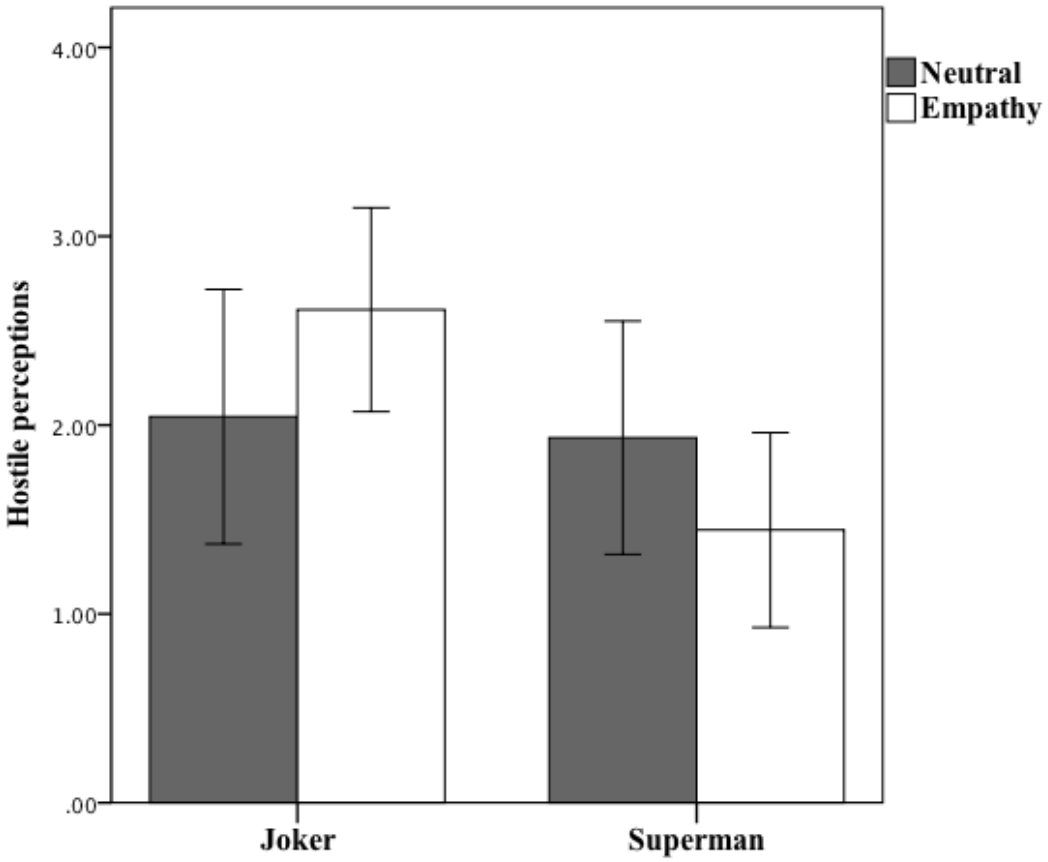

Figure 2: Hostile perception bias for participants playing Joker or Superman as a function of having read the empathy or the neutral text. Error bars indicate +/- 2 standard error of the mean.

Table 1: Means and standard deviations (in parentheses) of control measures (on a scale from 1 to 5 with high numbers indicating high approval)

	Superman		**Joker**		
	Empathy	**Neutral**	**Empathy**	**Neutral**	***p*-Value**
Familiarity with Character	4.13 (1.06)	4.36 (1.15)	3.67 (1.35)	3.93 (1.44)	>.05
Game outcome (No. of wins minus losses)	1.04 (0.75)	0.88 (0.87)	1.08 (0.57)	1.14 (0.91)	>.05
Perceived Handling	3.33 (1.23)	2.79 (1.05)	3.00 (1.36)	3.40 (0.91)	>.05
Satisfaction with assigned character	4.33 (1.18)	3.71 (1.44)	2.73 (1.67)	2.93 (1.44)	<.01
Effort to win	4.60 (0.63)	4.21 (1.12)	4.13 (1.25)	4.67 (0.49)	.06

Table 2: Means and standard deviations (in parentheses) or percentages of the dependent variables

	Superman		Joker	
	Empathy	**Neutral**	**Empathy**	**Neutral**
Hostile perception bias (scale 0-10)	1.44 (1.00)	1.93 (1.20)	2.61 (1.04)	2.04 (1.31)
Prosocial Behavior (picked up letters in %)	7.1	33.3	6.7	0
Acceptance of violence in the game as justified	1.67 (1.13)	2.65 (1.69)	1.47 (0.74)	2.13 (1.25)

Manuscript #3

Medienbasierte Empathie (MBE) – Entwicklung eines Instruments zur Erfassung empathischer Reaktionen bei Mediennutzung

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Zusammenfassung. Empathie ist die Fähigkeit, die Emotionen anderer Personen zu verstehen und mitzufühlen (Cohen & Strayer, 1996). Im Kontext der modernen Mediennutzung ist die Rolle von Empathie vergleichsweise wenig erforscht. Dabei scheint Empathie im Medienkontext und in direkter Kommunikation unterschiedlich zu entstehen (z.B. Leibetseder, Laireiter & Köller, 2007). Die vorliegende Arbeit stellt eine neue, der aktuellen Mediennutzung angemessene Skala zu medienbasierter Empathie (MBE) vor. Item- und Faktorenanalysen führten zu fünf Subskalen: *Medienmitleid, Affektive Medienempathie, Kognitive Medienempathie, Mediale Anteilnahme* und *Immersion bei Videospielen*. Sowohl in einer Schüler- (N = 273) als auch einer Erwachsenenstichprobe (N = 373) fanden sich eine identische Faktorstruktur und hohe Reliabilitäten. Die Konstruktvalidität konnte durch Zusammenhänge mit traditioneller Empathie, Aggression, Cyberbullying und Mediennutzung bestätigt werden. Der Subskala *Immersion bei Videospielen* kommt eine spezifische Rolle zu, was eine Auswertung auf Subskalenniveau nahelegt. In einem Ausblick wird erläutert, wie die MBE-Skala die Medienwirkungsforschung bereichern kann.

Schlüsselworte: Empathie, Emotionen, Medienwirkung, Immersion, Cyberbullying

Media-Based Empathy (MBE) – Development of an instrument to assess empathic reactions to media use

Abstract. Empathy is the ability to understand and feel for the emotions of others (Cohen & Strayer, 1996). In the context of media use research, the role of empathy has received comparably less attention. However, empathy seems to develop differently in the media context (e.g., Leibetseder, Laireiter & Köller, 2007). This study proposes a new media-based empathy (MBE) scale covering present media use habits. Item- and explorative factor analyses resulted in five subscales: *media compassion, affective media empathy, cognitive media empathy, media concern*, *immersion in video games*. In a student- (N = 273) and in an adult sample (N = 373) the same factorial structure and high reliabilities were found. Construct validity was confirmed via relationships to traditional empathy, aggression, cyberbullying, and media use. As the subscale *immersion in video games* plays a specific role, interpretation on the subscale level is advised. An outlook highlights MBE´s advances for media effects research.

Keywords: empathy, emotions, media effects, immersion, cyberbullying

Empathie spielt als soziale Fähigkeit im zwischenmenschlichen Alltag eine bedeutende Rolle und ist eine Voraussetzung sozial-emotionaler Entwicklung sowie gelungener sozialer Interaktion und Kommunikation (Hoffman, 2001). Dabei kann sich Empathie auf direkte wie medial vermittelte Kommunikationsreize richten (Leibetseder, Laireiter & Köller, 2007), z.B. durch non- und paraverbalen Reize im direkten Kontakt oder sprachliche Eigenschaften (z.B. Sprachduktus) in Chat-Nachrichten, die jeweils auf die Stimmung des Kommunikationspartners schließen lassen. Zwar herrscht in der Forschung Uneinigkeit über die Konstruktabgrenzung und Definition von Empathie (z.B. Steins, 1998), doch meist wird darunter die Prädisposition verstanden, affektive Hinweisreize anderer zu erkennen (z.B. Jolliffe & Farrington, 2006), sowie den emotionalen Zustand oder die Situation einer anderen Person zu verstehen und zu teilen (Batson, 2009). Empathie weist in üblichen Definitionen zunächst zwei Dimensionen auf. Als kognitive Empathie bezeichnet man die Fähigkeit, die Gefühle einer anderen Person zu verstehen oder ihre Perspektive einzunehmen. Unter affektiver Empathie versteht man die Fähigkeit, die Emotionen anderer Personen stellvertretend nachzufühlen (Davis, 1994; Hoffman, 2001). Studien haben gezeigt, dass kognitive Empathie als Voraussetzung für affektive Empathie gilt (z.B. Zillmann, 1994) und als Fähigkeit einer Person statt als Emotion konzeptualisiert werden sollte (Haidt, 2003). So wird Empathie in experimentellen Studien häufig durch die Anweisung induziert, sich emotional in bestimmte Situationen oder Rollen zu versetzen (z.B. Davis, 2004).

Empathie im Medienkontext

Empathie gilt als wichtiger vermittelnder emotionaler Faktor zwischen Mediennutzung und Medienwirkung (Nathanson, 2003; Schramm & Wirth, 2006) und findet in den letzten Jahren als Moderator dieses Zusammenhangs zunehmend Beachtung (z.B. Happ, Melzer &

Steffgen, im Druck). So erklärt die Empathie einer Person emotionale Reaktionen auf Medieninhalte und fiktive Charaktere (Konijn, Walma van der Molen & Van Nes, 2009) und beeinflusst die Medienpräferenzen der Nutzer (Funk & Buchman, 1995). Die gezeigten Reaktionen spiegeln dabei nicht nur die Emotionen im Medium wider, sondern gelten als eigenständige Reaktionen des Nutzers (Oatley, 1999).

Eine konzeptionelle Trennung zwischen Empathie im direkten Kontakt (im Folgenden: *traditionelle Empathie*) und Empathie bei Mediennutzung scheint empirisch geboten, da fiktive Inhalte idealisierte Situationen erzeugen, die im Vergleich zu realen Situationen distinkte emotionale Effekte bei Mediennutzern hervorrufen (Leibetseder et al., 2007; Westermann, Spies, Stahl & Hesse, 1996) und bei denen es leichter fällt, Empathie zu empfinden (Don-Quixote-Effekt; Shapiro & Rucker, 2004). Diese Fähigkeit, sich auf fiktive Inhalte einzulassen, variiert interindividuell (Dal Cin, Zanna & Fong, 2004). Ferner unterscheidet sich die medienvermittelte Information und Kommunikation konzeptuell grundlegend von direktem zwischenmenschlichen Kontakt: Erstens unterscheidet man zwischen rezeptiven (z.B. Buch, Fernsehen/Film) und interaktiven Formen der Mediennutzung (synchrone oder asynchrone Kommunikation über Chats, E-Mails, soziale Netzwerke, Videospiele). Zweitens können, anders als in der Realität, im Medienkontext fiktive Figuren auftreten, welche als Zielobjekt der Empathie erst durch imaginative Prozesse konstruiert werden müssen (D'Aloia, 2009; Mar & Oatley, 2008). Dass ein Filmcharakter als eine Person wahrgenommen wird, mit der die Zuschauer sich mitfreuen oder bei Spannung mitfiebern, ist also Ergebnis einer Vorstellung dieses Charakters als ein positiv besetztes Gegenüber. Drittens sind die emotionalen Hinweisreize, die als Grundlage kognitiver und affektiver Empathie dienen, im Medienkontext noch häufiger als im täglichen Leben nur in Ausschnitten verfügbar (z.B. bei Fernsehen/Filmen, Videospielen) oder auf verbale und textliche Reize beschränkt (z.B. bei Büchern, E-Mail- oder

Chatnachrichten). Aus diesen Gründen unterscheiden sich Informationsgrundlage, Zielobjekte und Interaktionsform bei medienbasierter Empathie im Gegensatz zu traditioneller Empathie (z.B. Barrett-Lennard, 1993). Die empirischen Befunde und theoretischen Argumente sprechen zudem für unterschiedliche empathische Prozesse, die auch bei der Erfassung medienbasierter Empathie zu berücksichtigen sind (z.B. Leibetseder et al., 2007). Folgende Arbeitsdefinition von medienbasierter Empathie soll in der vorliegenden Arbeit verwendet werden und unterstreicht zugleich die Notwendigkeit eines neuen Messinstruments:

> Medienbasierte Empathie umfasst die Gesamtheit kognitiver und affektiver Reaktionen auf emotionsrelevante Information und Kommunikation bei rezeptiver und interaktiver Mediennutzung, die sich auf fiktive Medienfiguren oder reale Personen beziehen.

Empathie, aggressives Verhalten und Cyberbullying

Um die Relevanz von Empathie im Medienkontext hervorzuheben, wird in diesem Abschnitt der Forschungsstand zu traditioneller Empathie kurz dargestellt. Empathie hängt gleichermaßen mit positiven familiären Beziehungen, prosozialem Verhalten (Eisenberg & Miller, 1987) und der Norm der sozialen Verantwortung (Bierhoff, 2000) zusammen. Studien belegen, dass die Persönlichkeitseigenschaft Empathie negativ mit aggressivem Verhalten (Miller & Eisenberg, 1988), kriminellem Verhalten (Jolliffe & Farrington, 2004), Bullying (Gini, Albiero, Benelli & Altoè, 2007) und der Präferenz für gewalthaltige Medieninhalte (Krahé & Möller, 2010) korreliert. Ähnliche Befunde zu prosozialem und aggressivem Verhalten finden sich nicht nur bei Erwachsenen, sondern auch bei Kindern (Eisenberg et al., 1993).

Eine Vielzahl sozialer Interaktionen finden insbesondere bei Kindern und

Jugendlichen heutzutage medienvermittelt statt (z.B. E-Mail, Soziale Netzwerke; siehe BIU, 2012; MPFS, 2012). In diesem Kontext treten auch antisoziale Verhaltensformen wie Cyberbullying auf (Langos, 2012). Unter Cyberbullying versteht man eine wiederholte, absichtliche Schädigung über Kommunikationsmedien – häufig gegen eine Person, die sich nur schwer selbst helfen kann (z.B. Tokunaga, 2010). In diesen (meist öffentlichen) Situation sind neben Tätern und Opfern auch Zuschauer in verschiedenen Rollen involviert (Pfetsch, Ittel & Walk, 2012; Salmivalli, 2010), bei denen emotionale, potenziell empathische Reaktionen entstehen, die durch eine medienbasierte Empathieskala messbar werden. Ein solches Maß ist besonders relevant, da Studien zu traditioneller Empathie bislang uneindeutige Befunde lieferten. Während einige Untersuchungen negative Zusammenhänge zwischen Cyberbullying und traditioneller affektiver (Ang & Goh, 2010; Steffgen, König, Pfetsch & Melzer, 2011) oder kognitiver Empathie (Ang & Goh, 2010) finden, konnten andere Studien diese Zusammenhänge nicht zeigen (Almeida, Correia, Marinho & Garcia, 2012).

Empathie in Videospielen

Ob Empathie im Kontext von Videospielen überhaupt auftreten kann wurde bislang häufig in Frage gestellt (z.B. D'Aloia, 2009). Zwar werden einige Spiele heutzutage eingesetzt, um Empathie zu fördern (z.B. Bennett, 2012), doch die Rolle von Empathie bei Videospielen haben erst wenige Studien untersucht (z.B. Happ et al., im Druck; Hartmann, Toz & Brandon, 2010; Jin, 2011; Konijn, Nije Bijvank, van der Heijden, Walma van der Molen & Hoorn, 2008; Zillmann, 2006). Dagegen existieren zahlreiche Studien, die die Identifikation mit einem Videospielcharakter (z.B. Konijn, Nije Bijvank & Bushman, 2007) oder Immersion, eine extremere Form der Identifikation mit einem virtuellen Avatar, als wichtigen Bestandteil bei der Mediennutzung und des Unterhaltungserlebens untersuchen

(z.B. Persky & Blascovich, 2008). Anders als bei Identifikation ist der Nutzer bei Immersion aktiv in das Geschehen eingebunden, was zu einem Eintauchen und Aufgehen in dem Spiel und somit zu stärkerem Selbstwirksamkeitserleben führt (Klimmt & Hartmann, 2006).

Messung von medienbasierter Empathie

Zur Messung von Empathie können Reaktionen auf Bilder oder Vignetten, Mimik und Gestik-Kodierung oder Verhalten nach experimentellen Induktionen erhoben werden (Miller & Eisenberg, 1988). Häufiger werden jedoch Selbstbeurteilungsfragebögen eingesetzt. Die Empathiefragebögen, die in den Überblicksarbeiten von Holz-Ebeling und Steinmetz (1995), Jolliffe und Farrington (2004) oder Steins (1998) dargestellt werden, beziehen sich auf unterschiedliche Empathiedimensionen (z.B. affektive Empathie), beinhalten allerdings mit Ausnahme des Interpersonal Reactivity Index (IRI, Davis, 1983) keine Items zu Empathie im Medienkontext.

Der IRI (dt. Übersetzung: Paulus, 2009) ist auch im deutschen Sprachraum eines der gebräuchlichsten Messinstrumente zur Erfassung von Empathie und umfasst in seinen vier Subskalen unter anderem auch die bereits erwähnten Komponenten affektiver und kognitiver Empathie (Empathic Concern und Perspective Taking). Ergänzt wird der IRI durch die Subskalen Empathische Überforderung (Personal Distress) und Fantasie Empathie. Letztere beschreibt die Tendenz, sich in die Gefühlswelt fiktiver Charaktere aus Filmen und Romanen hineinzuversetzen. Ob diese Subskala primär kognitive oder affektive Aspekte misst und welche Rolle sie bei der Vorhersage von delinquentem und aggressivem Verhalten spielt, ist bislang unklar (Hosser & Beckurts, 2005). Trotz einiger weiterer Versuche der Skalenentwicklung in der Vergangenheit (z.B. Davis, 1983; Früh & Wünsch, 2009; Stotland et al., 1978), fehlt bislang eine Skala, die Empathie bei der Fülle moderner Kommunikations- und Unterhaltungsmedien (z.B. Chat, Videospiele) vollständig

abbildet. Ferner lassen bisherige Skalen zur Messung von Empathie im Medienkontext sowohl die besonderen Prozesse interaktiver Mediennutzung als auch eine Differenzierung zwischen realen Personen und fiktiven Medienfiguren als Gegenstand empathischer Prozesse außer Acht (Leibetseder et al., 2007).

Ziel war es somit, eine Skala (Medienbasierte Empathie, [MBE]) zu entwickeln, die sowohl interaktive als auch rezeptive Mediennutzung umfasst und sich mit der Reaktion auf reale (z.B. Chat) und fiktive Personen (z.B. Videospiele) beschäftigt. Zudem sollte der Rolle von empathischen Reaktionen auf Cyberbullying und Immersion bei Videospielen eine besondere Bedeutung beigemessen werden (siehe auch Persky & Blascovich, 2008), da bislang zu beiden Forschungsansätzen unklare Befunde vorliegen. In einer Vorstudie wurden geeignete Items generiert, deren Faktorstruktur dann in einer jugendlichen Stichprobe untersucht wurde (Studie 1). Um eine breitere Anwendbarkeit der Skala zu gewährleisten, wurde die gefundene Faktorstruktur anschließend in einer erwachsenen Population repliziert (Studie 2). Ferner wurden in beiden Studien die Reliabilität, die Validität und die Stabilität der Skala geprüft.

Skalenkonstruktion

Um geeignete Items für eine MBE-Skala auszuwählen, wurde zunächst eine Vorstudie mit einem entsprechenden Itempool online durchgeführt. Der Wortlaut der 95 Items stammte teilweise aus bestehenden Empathieskalen (z.B. Paulus, 2009; Früh & Wünsch, 2009), enthielt aber vor allem durch die Autoren formulierte Aussagen, basierend auf Befunden und Konzepten der modernen Mediennutzungs- und Medienwirkungsforschung. Den Teilnehmern standen auf die Frage „Wie sehr trifft die jeweilige Aussage auf Sie zu?“ die Antwortkategorien (1) „nie“, (2) „selten“, (3) „manchmal“, (4) „oft“ und (5) „immer“ zur Verfügung. Alle Items waren so formuliert, dass hohe Werte einer hohen Ausprägung von

MBE entsprachen, da negativ formulierte Items bei Empathie erhöhte kognitive Ansprüche an Probanden stellen (siehe Paulus, 2009).

Insgesamt füllten N = 165 Teilnehmende das Fragebogenset vollständig aus. Zunächst wurden Items mit zu vielen fehlenden Daten oder mit unzureichenden psychometrischen Eigenschaften ausgeschlossen (Trennschärfe bezüglich eines Gesamtwertes zu medienbasierter Empathie [r_{it}], Schwierigkeit [p_m]; vgl. Bortz & Döring, 2006). In einem zweiten Schritt wurden jene Items ausgeschlossen, die von den Teilnehmern in freien Antwortfeldern als missverständlich beschrieben waren oder deren Formulierungen klar mit anderen Items inhaltlich überlappten. In einem dritten Schritt wurde darauf geachtet, dass möglichst viele verschiedenen Medientypen in den Items Erwähnung finden. Nach diesen Kriterien ergaben sich 25 Items, die alle Anforderungen erfüllten. Sowohl die Itemschwierigkeiten ($.35 \leq p_m \leq .76$) als auch die Trennschärfen ($.23 \leq r_{it} \leq .61$) der finalen 25 Items wiesen die verlangte Güte auf (vgl. Bortz & Döring, 2006).

Studie 1: Jugendliche mit intensiver Mediennutzung

Nachdem in der Vorstudie 25 Items identifiziert wurden, sollten diese nun bei jugendlichen Teilnehmenden einer deutschen Gesamtschule getestet werden. Jugendliche weisen üblicherweise eine breitere und intensivere Mediennutzung auf als Erwachsene (MPFS, 2012).

Methode

Stichprobe. Zum ersten Messzeitpunkt lagen $N = 273$ Datensätze von Schülerinnen und Schülern vor. Die Jahrgangsstufen 8 ($N = 106$), 10 ($N = 111$) und 12 ($N = 43$) nahmen an der Erhebung teil. 48.4 % der Teilnehmenden waren weiblich und das mittlere Alter

betrug in dieser Stichprobe *M* = 15.1 Jahre (*SD* ± 1.7) mit einer Spannbreite von 12 bis 21 Jahren. Zum zweiten Messzeitpunkt sechs Monate später wurden *N* = 303 Datensätze erhoben. *N* = 195 Datensätze aus beiden Zeitpunkten ließen sich eindeutig zuordnen und wurden für die Stabilitätsanalysen herangezogen. Für die Skalenbildung wurde ausschließlich der erste Messzeitpunkt verwendet, um Lerneffekte oder Veränderungen durch die wiederholte Beantwortung auszuschließen.

Messinstrumente. Um die konvergente und diskriminante Validität der MBE-Skala zu bestimmen (siehe Campbell & Fiske, 1959), wurden die Zusammenhänge zu den folgenden verwandten Konstrukten und Subskalen anderer Messinstrumente untersucht: Empathie wurde anhand des IRI (siehe oben; 16 Items, α = .90) mit der Subskala Fantasie Empathie (4 Items, α = .78) und der auf Film und Fernsehen fokussierenden Medienempathieskala (Früh & Wünsch, 2009; 9 Items; α = .67) erhoben. Um Aggression zu messen, wurde die für Jugendliche adaptierte Version (Möller, 2006) des Aggression Questionnaire (AQ; Buss & Warren, 2000; Gesamtskala, 32 Items; α = .91, Subskala Physische Aggression, 5 Items, α = .83) integriert. Außerdem wurden die Norm der sozialen Verantwortung (Kurzversion von Bierhoff, 2000; 8 Items; α = .84) und eine Kurzskala zum Familienklima (nach Wentzel, 1991; 4 Items; α = .87) erhoben. Zusätzlich entwickelte Fragen zur allgemeinen Mediennutzung (11 Items zu rezeptiver und interaktiver Mediennutzung; α = .68; Beispiel: „Wie oft nutzt Du soziale Netzwerkseiten?“) und zur Gewaltpräferenz in Medien (2 Items; α = .65; Beispiel: „Wie oft schaust Du gewalthaltige Filme oder Serien?“) orientierten sich an aktuellen Befunden zur Nutzung verschiedener Medientypen von Jugendlichen (MPFS, 2012). Die vorliegende Stichprobe wies, wie angenommen, eine hohe Mediennutzung auf (durchschnittlich etwa 1 Stunde am Tag; *M* = 3.87, *SD* = 0.96 bei einer 7-stufigen Likert-Skala von [1] = „selten oder nie“ bis [7] = „immer“). Zusätzlich wurden die Schüler gebeten,

ihr Verhalten in der Schule zu beurteilen. Dies beinhaltete eine Skala zu allgemeinem prosozialen Verhalten in der Schule (12 Items; α = .70), sowie jeweils ein Item zur Beurteilung der eigenen Beteiligung an Cyberbullying und traditionellem Bullying als Täter.

Statistische Analysen. Die Statistiksoftware SPSS (Version 21.0) wurde für alle Auswertungen eingesetzt. Zur Bestimmung der faktoriellen Struktur wurde eine exploratorische Faktorenanalyse in Form einer Hauptkomponentenanalyse mit orthogonaler Varimax Rotation durchgeführt. Die optimale Anzahl von zu extrahierenden Faktoren richtete sich nach dem Kaiser-Kriterium (Eigenwerte > 1), dem Scree-Plot, sowie einer inhaltlichen Interpretation der Faktoren. Für die psychometrischen Analysen wurden die Itemschwierigkeiten und korrigierten Itemtrennschärfen herangezogen. Als Reliabilitätsmaß wurden interne Konsistenzen (Cronbach‘s Alphas) der Subskalen berechnet. Zur Überprüfung der Validität wurden t-Tests und bivariate Pearson-Korrelationskoeffizieten berechnet. Abschließend wurden die Test-Retest-Reliabilitäten für das sechsmonatige Zeitintervall bestimmt.

Ergebnisse

Fehlende Werte. Da die Items fehlende Werte aufwiesen (*M* = 3.4 % je Item), wurde der Missing Completely at Random Test (MCAR; Little, 1988) durchgeführt. Das nicht signifikante Ergebnis ($\chi^2[1064] = 1126.13$, $p = .09$) deutet in diesem Fall darauf hin, dass die Daten nicht systematisch fehlen und ersetzt werden dürfen. Dazu wurde die Expectation Maximization Methode genutzt, die Folgeanalysen vereinfacht und neben dem Multiple Imputation Ansatz als die adäquateste Methode, fehlende Daten zu ersetzen gilt (siehe Schafer & Olsen, 1998).

Faktorstruktur. Zunächst wurden die Voraussetzungen einer Faktorenanalyse überprüft. Zwar wurde Multikollinearität in der Korrelationsmatrix angezeigt (Determinant = 0.000002), doch bei einer genauen Prüfung fand sich keine Interkorrelation der Items > .80 (max. r = .78). Der Bartlett-Test auf Sphärizität zeigte, dass die Korrelationskoeffizienten der Korrelationsmatrix signifikant voneinander abweichen. ($\chi^2[300] = 345.58$; $p < .001$). Außerdem wies das Kaiser-Meyer-Olkin Maß (KMO) darauf hin, dass die partiellen Korrelationen der Items klein genug waren (KMO = .88). Bei der exploratorischen Faktorenanalyse ergab sich anhand des Kaiser- Kriteriums eine fünffaktorielle Lösung mit folgenden Eigenwerten: 7.5; 3.5; 2.4; 1.3; 1.1 (alle anderen < 1). Auch innerhalb des Scree-Tests im Diagramm der Eigenwerte zeigte sich ein deutlicher Abfall zwischen der starken Steigung der ersten fünf Faktoren und dem graduellen Verlauf der restlichen Faktoren. Die Extraktion von fünf Faktoren führte zu einer Varianzaufklärung von 62.8 %.

Der erste Faktor wurde *Medienmitleid* (MM) genannt und umfasste 5 Items. Dem zweiten Faktor, *Affektive Medienempathie* (AM), konnten 4 Items zugeordnet werden. Die verbleibenden drei Faktoren waren *Kognitive Medienempathie* (KM; 5 Items), *Mediale Anteilnahme* (MA; 6 Items) und *Immersion bei Videospielen* (IV; 5 Items). Die Zuordnung der einzelnen Items zu den Faktoren war weitgehend eindeutig. Die Faktorladungen und die Kommunalitäten finden sich in Tabelle 1. Einzig das Item „Wenn ich in Filmen oder im Fernsehen sehe, dass sich Menschen sehr freuen, freue ich mich selbst.“ lud auf drei Faktoren, konnte aber inhaltlich am besten der *Affektiven Medienempathie* zugeordnet werden.

Tabelle 1 hier einfügen

Itemanalysen und Reliabilitäten. In Tabelle 2 finden sich die deskriptiven Werte der Items, Subskalen und des Gesamtwerts. Die Mittelwerte der fünfstufigen Skala lagen zwischen M = 1.67 (SD = 1.14) und M = 3.48 (SD = 1.21). Reliabilitätsanalysen zeigten zufriedenstellende interne Konsistenzen für den Gesamtwert und alle Subskalen (.78 ≤ α ≤. 89). Die Trennschärfekoeffizienten der einzelnen Items lagen erneut im mittleren bis hohen Bereich (.40 ≤ r_{it} ≤ .80) und auch die Itemschwierigkeiten waren zufriedenstellend (.33 ≤ p_m ≤ .70).

Tabelle 2 hier einfügen

Konstruktvalidität. Tabelle 3 gibt Aufschluss über die Zusammenhänge zu anderen relevanten Variablen. Da die Subskala *Immersion bei Videospielen* zum Teil unterschiedliche Ergebnisse im Vergleich zu anderen Subskalen aufwies, werden zusätzlich die Ergebnisse zu einem MBE-Gesamtwert ohne diese Subskala angegeben.

Bei den Subskalen *Medienmitleid*, *Affektive Medienempathie* und *Kognitive Medienempathie* sowie dem Gesamtwert von MBE wiesen ältere Schüler höhere Werte auf (alle p < .05), während für *Mediale Anteilnahme* und *Immersion bei Videospielen* keine Zusammenhänge mit dem Alter existierten (alle p > .05). Es zeigte sich, dass alle MBE-Subskalen außer *Immersion bei Videospielen* signifikant positiv mit Empathie und auch Fantasie-Empathie zusammenhingen (alle p < .01). Zur Film- und Fernseh-Empathie-Skala gab es erwartungsgemäß meist mittelhohe Zusammenhänge (alle p <.01), während *Immersion bei Videospielen* dazu unkorreliert war (p > .05). Mit Aggression (und der Subskala Physische Aggression) korrelierten nur die Subskalen *Medienmitleid* und *Mediale Anteilnahme* negativ, während sich für *Immersion bei Videospielen* positive Zusammenhänge fanden. Ein ähnliches Bild zeigte sich für die Mediennutzung: während

Mediennutzung mit allen anderen Komponenten von MBE negativ zusammenhing, verhielt es sich für *Immersion bei Videospielen* genau umkehrt. Sie korrelierte nicht nur positiv mit Mediennutzung ($p < .05$), sondern auch mit der Präferenz für gewalthaltige Medien ($p < .01$).

Tabelle 3 hier einfügen

Mit dem Item zur Erfahrung als Täter von Bullying hing einzig die Subskala *Mediale Anteilnahme* negativ zusammen ($p < .01$), bei Cyberbullying galt dies auch für den MBE-Gesamtwert ($p < .01$). Auch mit den positiv besetzten Variablen wie Familienbeziehung, Norm der sozialen Verantwortung und prosozialem Verhalten in der Schule lagen durchweg positive und meist signifikante Korrelationen vor ($p < .05$ oder $p < .01$). Doch auch hier zeigten sich keine oder sogar signifikant negative Zusammenhänge (z.B. $r_{\text{Prosoziales Verhalten in der Schule}} = -.15$; $p < .01$) zu *Immersion bei Videospielen.*

Jungen und Mädchen wiesen bezüglich aller Subskalen und auch bezüglich des Gesamtwertes unterschiedliche Mittelwerte auf. T-Tests für unabhängige Stichproben zeigten, dass Mädchen bei den Subskalen *Kognitive Medienempathie* ($p < .05$, $d = 0.3$), *Medienmitleid*, *Affektive Medienempathie*, *Mediale Anteilnahme,* sowie beim MBE-Gesamtwert durchweg höhere Mittelwerte erzielten (alle $p < .01$, $d = 0.4$ bis $d = 1.2$), während Jungen einzig bei der Subskala *Immersion bei Videospielen* eine stärkere Ausprägung zeigten ($p < .01$, $d = 0.8$).

Stabilität. Da zum zweiten Messzeitpunkt ebenfalls einige fehlende Werte auftraten (M = 4.0 % je Item), wurde für die 195 Versuchspersonen die zu beiden Messzeitpunkten teilnahmen fehlende Werte anhand der *Expectation Maximization* Methode ersetzt (siehe

oben), da die Daten nicht systematisch fehlten (χ^2 [836] = 840.56, p = .45). 42.2 % dieser Teilnehmer waren männlich und das mittlere Alter betrug zum zweiten Messzeitpunkt in dieser Stichprobe M = 15.5 Jahre (SD ± 1.5) und lag zwischen 13 und 20 Jahren.

Werden Eigenschaften anhand von Persönlichkeitsfragebögen gemessen, werden mittelfristige Stabilitäten von r = .80 oder leicht darunter erwartet (siehe Asendorpf, 1996). Die Test-Retest-Korrelationen sollten deshalb über den Zeitraum von sechs bis neun Monaten hinweg bei r ≥ .50 liegen. Dieses Kriterium wurde bei fast allen Subskalen und beim Gesamtwert erfüllt (siehe Tabelle 2; r = .56 bis .68; alle p < .01), wies einzig bei der Subskala *Mediale Anteilnahme* einen etwas geringeren Wert auf (r = .31; p < .01).

Studie 2: Erwachsene mit durchschnittlicher Mediennutzung

Nachdem die Qualität der Skala bei jungen Personen mit hoher Mediennutzung gezeigt wurde, sollte in Studie 2 untersucht werden ob sich die Ergebnisse von Studie 1 auch für ältere Versuchspersonen mit durchschnittlicher Mediennutzung und größerer Altersvarianz replizieren lassen.

Methode

Stichprobe. Der Link zur Onlinestudie wurde über verschiedene E-Mail-Verteiler, die für die Teilnahme an wissenschaftlichen Studien werben, bekannt gemacht. Die Startseite des Onlinefragebogens wurde 761 mal aufgerufen. Es füllten N = 373 Teilnehmer das Fragebogenset vollständig aus; wiederum war die Mehrzahl der Teilnehmer weiblich mit 56.7 %. Verglichen mit der Vorstudie nahmen erwachsene Personen eines breiteren Spektrums zwischen 13 und 68 Jahren teil (M = 28.1 Jahre [SD ± 8.1]). 48 % waren Studierende, 41 % Berufstätige, 6 % Schüler/innen und 5 % Sonstige (z.B. in Elternzeit).

Zum ersten Messzeitpunkt konnten die Versuchsteilnehmer ihre E-Mail-Adresse getrennt von ihren Antworten angeben, um zum zweiten Messzeitpunkt erneut kontaktiert zu werden. Zwölf Monate später lagen 168 vollständige Datensätze vor. *N* = 135 Datensätze aus beiden Zeitpunkten ließen sich eindeutig zuordnen und wurden für Stabilitätsanalysen herangezogen.

Messinstrumente. Neben MBE wurden erneut Skalen erfasst, um die konvergente und diskriminante Validität zu prüfen. Genau wie in Studie 1 wurden neben dem Alter und dem Geschlecht der IRI (Gesamtskala, α = .80; Fantasie Empathie, α = .76), die Film- und Fernseh-Empathie-Skala (α = .76), der Aggressionsfragebogen diesmal in der Version für Erwachsene (AQ, Buss & Perry, 1992, dt. Herzberg, 2003; Gesamtskala, 31 Items, α = .90; Physische Aggression, 4 Items, α = .77), die Präferenz für Gewalt in Medien (siehe Studie 1; α = .60) und die allgemeine Mediennutzung (siehe Studie 1; α = .51) erhoben. Wie erwartet wies diese Stichprobe, im Vergleich zu der Stichprobe in Studie 1, eine niedrigere allgemeine Mediennutzung auf (weniger als 1 Stunde am Tag; *M* = 3.28, *SD* = 0.66 bei einer 7-stufigen Likert-Skala von [1] = selten oder nie bis [7] = immer). Auch hier wurden je zwei Items zu prosozialem (α = .47) und antisozialem Alltagsverhalten (α = .51) und die Kurzskala zur Norm der sozialen Verantwortung (α = .87) verwendet.

Statistische Analysen. Die Daten wurden wie schon in der Vorstudie mit der Onlinefragebogenplattform SoSci Survey erhoben. Berechnungen zur Modellgüte wurden mit Mplus (Version 6; Muthén & Muthén, 2010), alle anderen Berechnungen mit SPSS (Version 21.0) durchgeführt. Anhand von konfirmatorischen Faktorenanalysen (KFA) wurde das in Studie 1 gefundene Modell in zwei Schritten getestet. Da die Mehrzahl der fehlenden Werte bei den Items zur *Immersion bei Videospielen* auftrat und keine Werte

ersetzt werden durften (siehe unten), wurde zunächst die Struktur von fünf Faktoren aus Studie 1 bei Personen ohne fehlende Werte getestet (*N* =121). Um die Stichprobe zu erhöhen, wurde in einem zweiten Schritt das Modell ohne die Items der Subskala *Immersion bei Videospielen* berechnet (N = 193).

Ergebnisse

Fehlende Werte. Die Datensätze der 373 Versuchspersonen wiesen bei den MBE Items fehlende Werte auf (*M* = 10.5 % je Item). Da die Daten jedoch systematisch fehlten (χ^2[949] = 1090.92, *p* = .001), durften keine Werte ersetzt werden.

Faktorstruktur. Die konfirmatorische Faktorenanalyse sollte eine fünf- und eine vierfaktorielle Struktur bestätigen. Es zeigten sich bezüglich der Zusammenhänge der manifesten Variablen (Items) zu den latenten Variablen (Faktoren) über beide Versionen hinweg Werte, die vergleichbar waren mit den Faktorladungen der exploratoriven Faktorenanalyse in Studie 1. Einzig das Item „Wenn ich in Filmen sehe, dass Menschen traurig sind, verstehe ich, warum sie weinen." lud neben der Skala *Mediale Anteilnahme* noch auf der Subskala *Medienmitleid*. Diese Doppelladung und zwei Iteminterkorrelation innerhalb der Faktoren *Medienmitleid* und *Immersion bei Videospielen* wurden im Modell berücksichtigt. Die Passung beider Modelle wurde anhand von mehreren Indikatoren überprüft. Die Chi-Quadrat-Werte für beide Datensätze lagen bei χ^2 (df = 262, 5 Faktoren) = 391.92 und χ^2 (df = 163, 4 Faktoren) = 329.49, was ein als gut zu beurteilendes χ^2 / df-Verhältnis von 1.50 und 2.02 ergibt (siehe Moosbrugger & Schermelleh-Engel, 2007). Der Comparative Fit Index (CFI) beträgt .91 (5 Faktoren) und .90 (4 Faktoren), was einen akzeptablen Fit darstellt (Marsh et al., 2009). Der Root Mean Square Error of Approximation-Wert (RMSEA), der bei .06 (5 Faktoren) und .07 (4 Faktoren) liegt, befindet

sich ebenfalls im zufriedenstellenden Bereich (siehe Moosbrugger & Schermelleh-Engel, 2007). Das Modell mit 5 Faktoren weist eine höhere Modellgüte auf als das Modell mit 4 Faktoren, was für eine Inklusion der Subskala *Immersion bei Videospielen* spricht.

Itemanalysen und Reliabilitäten. In Tabelle 2 befinden sich die deskriptiven Werte der 25 Items, der Subskalen und des MBE-Gesamtwerts. Die Ergebnisse von Studie 1 ließen darauf schließen, *Immersion bei Videospielen* inhaltlich von den anderen Subskalen abzugrenzen. Deshalb wurde in Studie 2 lediglich ein MBE-Gesamtwert ohne die Items der Subskala *Immersion bei Videospielen* ausgewertet. Reliabilitätsanalysen zeigten zufriedenstellende interne Konsistenzen für den Gesamtwert sowie für alle Subskalen ($.71 \leq \alpha \leq .91$). Die Trennschärfekoeffizienten der einzelnen Items lagen wie gewünscht im mittleren bis hohen Bereich ($.31 \leq r_{it} \leq .83$) und auch die Itemschwierigkeiten waren zufriedenstellend ($.29 \leq p_m \leq .77$).

Konstruktvalidität. Tabelle 4 gibt Aufschluss über die Zusammenhänge zwischen den MBE-Subskalen sowie des Gesamtwerts mit relevanten Variablen. Es fanden sich erneut meist positive Zusammenhänge zum Alter; diese sind jedoch nur für *Medienmitleid*, *Affektive Medienempathie*, *Mediale Anteilnahme* und den Gesamtwert signifikant ($p < .05$). In dieser Stichprobe korrelierten alle MBE-Subskalen mit dem IRI (alle $p < .01$) und der Film- und Fernseh-Empathie-Skala (alle $p < .01$). Es fanden sich negative Zusammenhänge zwischen dem Aggressionsfragebogen und dem Gesamtwert sowie allen Subskalen (alle $p < .01$), nur für *Immersion bei Videospielen* gabt es keine signifikanten Zusammenhänge ($p > .05$). Ein identisches Muster zeigte sich für die Subskala Physische Aggression. Zur allgemeinen Mediennutzung wies einzig *Affektive Medienempathie* eine signifikante negative Korrelation auf ($p < .05$). Bei der Präferenz für gewalthaltige Medieninhalte zeigte sich ein

differenziertes Bild: während *Medienmitleid*, *Affektive Medienempathie*, *Mediale Anteilnahme* und der MBE-Gesamtwert erwartungsgemäß negativ mit dieser Skala zusammenhingen (alle $p < .01$), zeigte *Kognitive Medienempathie* keine Zusammenhänge ($p > .05$) und *Immersion bei Videospielen* korrelierte positiv mit dieser Präferenz ($r = .33$; $p < .01$).

Tabelle 4 hier einfügen

Die Norm der sozialen Verantwortung und prosoziales Verhalten im Alltag wiesen positive und meist signifikante Zusammenhänge mit fast allen MBE-Subskalen und dem Gesamtwert auf (alle $p < .01$). *Immersion bei Videospielen* bildete eine Ausnahme und korrelierte weder mit prosozialem (ebenso: *Kognitive Medienempathie*) noch mit antisozialem Verhalten im Alltag (beide $p > .05$). Alle anderen Subskalen außer *Medienmitleid* korrelierten negativ mit antisozialem Alltagsverhalten ($p < .05$ oder $p < .01$).

Männer und Frauen wiesen in dieser Stichprobe keine Unterscheide bei der Subskala *Kognitive Medienempathie* ($p > .05$) auf. Genau wie in Studie 1 hatten weibliche Versuchspersonen jedoch höhere Werte bei *Medienmitleid* ($p < .01$, $d = 0.7$), *Affektive Medienempathie* ($p < .01$, $d = 1.1$), *Mediale Anteilnahme* ($p < .01$, $d = 0.7$) und dem Gesamtwert ($p < .01$, $d = 0.8$), wobei männliche Versuchspersonen höhere Werte auf der Subskala *Immersion bei Videospielen* erzielten ($p < .01$, $d = 0.8$).

Stabilität. Da zum zweiten Messzeitpunkt ebenfalls einige Werte fehlten ($M = 14.9$ % je Item), dies jedoch nicht systematisch der Fall war ($\chi^2[1028] = 1098.52$, $p = .06$), wurden diese für die 135 Versuchspersonen, die zu beiden Messzeitpunkten teilnahmen, ersetzt 60

% der Versuchspersonen, die an beiden Testungen teilnahmen, waren weiblich und zum zweiten Messzeitpunkt *M* = 29.4 Jahre (*SD* ± 7.6) alt (Spannbreite: 19 bis 59 Jahre). Die Retest-Korrelation lag bei allen Subskalen und beim Gesamtwert über *r* = .50 (*r* = .67 bis .73; alle *p* < .01; siehe Tabelle 4), und kann damit als stabil angesehen werden (siehe Asendorpf, 1996).

Diskussion

Das Ziel der vorliegenden Studie war die Erstellung und Validierung einer Skala zur Messung medienbasierter Empathie. Anhand der Faktorenanalysen, der internen Konsistenzen der Subskalen und den Ergebnissen zur Konstruktvalidität konnte das Ziel der Entwicklung einer Skala mit guter psychometrischer Qualität erreicht werden. Die Skala besitzt eine inhaltlich breite Struktur und ist stärker als bisherige Skalen auf die Vielfältigkeit empathischer Reaktionen bei der Nutzung unterschiedlicher Medien bezogen. Eine fünffaktorielle Lösung zeigte sich sowohl in explorativen als auch konfirmatorischen Faktorenanalysen und die Modellgüte kann insgesamt als zufriedenstellend bis gut bezeichnet werden.

Die gefundenen konvergenten und diskriminanten Zusammenhänge der MBE-Subskalen zu anderen relevanten Konstrukten sprechen für eine hohe Konstruktvalidität. Hierbei ist auffällig, dass sich die Subskala *Immersion bei Videospielen*, wie erwartet, von den anderen Subskalen unterscheidet. So zeigten sich nur für die verbleibenden Subskalen in beiden Untersuchungen positive Zusammenhänge sowohl zum IRI und dessen Subskala *Fantasie Empathie,* als auch zur Fernseh- und Filmempathie. MBE weist somit Zusammenhänge zu bereits etablierten Messinstrumenten im Bereich Medienempathie auf, was die konvergente Validität der Skala untermauert. Trotz dieser gemeinsamen Basis weisen die lediglich mittelhohen Zusammenhänge darauf hin, dass sich die empathischen

Mechanismen für die Informationsverarbeitung direkter und medienvermittelter Reize unterscheiden (siehe Leibetseder et al., 2007). Wie auch schon bei traditionellen Empathieskalen (z.B. Mischo, 2003) zeigte sich, dass Frauen höhere Empathiewerte aufweisen als Männer. Außerdem korrelierten die MBE-Subskalen mit positiven Sozialvariablen wie der Norm der sozialen Verantwortung, prosozialem Verhalten in der Schule oder im Alltag und der von den Schülern selbstberichteten Beziehungsqualität zu ihren Eltern. MBE weist also ähnlich wie traditionelle Empathie positive Zusammenhänge zu sozialen Variablen auf. Medienbasierte Empathie ist bei Vielnutzern jedoch nicht zwingend stärker ausgeprägt. Die Nutzung von Medien allein schult also nicht die medienbasierte Empathie. Während bei Jugendlichen sogar viel Mediennutzung mit geringen Werten in MBE einhergeht, finden sich in der Erwachsenenstichprobe kaum Zusammenhänge. Stabil erscheinen jedoch die negativen Zusammenhänge zur Präferenz von gewalthaltigen Medieninhalten, die sich bei Erwachsenen wie auch bei Jugendlichen finden ließen. Beides geht einher mit Befunden aus der Medienwirkungsforschung, welche nahelegen dass Mediennutzung im Allgemeinen und gewalthaltige Mediennutzung im Spezifischen zu einer Desensibilisierung beim Nutzer führen (siehe Strasburger & Wilson, 2003) und diese Effekte besonders stark bei Kindern und Jugendlichen zu erwarten sind (z.B. Molitor & Hirsch, 1994). Zur Klärung der Frage, ob nun die Medienwahl und -Nutzung die medienbasierte Empathie beeinflusst oder ob die Wirkrichtung umgekehrt ist, sind weitere längsschnittliche Studien erforderlich, die ähnlich wie bei der Rolle traditioneller Empathie in der Medienwirkungsforschung (Krahé & Möller, 2010) die Stärke der wechselseitigen Einflüsse genauer untersuchen.

Unterschiedlich verhielten sich die MBE-Subskalen bezüglich der Aggressionsmaße in beiden Stichproben. Während bei Erwachsenen *Medienmitleid, Affektive Medienempathie, Kognitive Medienempathie* und *Mediale Anteilnahme* hoch signifikant

negativ mit fast allen Formen von Aggression und antisozialem Alltagsverhalten zusammenhingen, fanden sich diese Korrelationen bei Jugendlichen nur für *Medienmitleid* und *Mediale Anteilnahme.* Weitere Studien sollten diese Unterschiede genauer untersuchen. Ferner geben Jugendliche mit geringer Ausprägung der *Medialen Anteilnahme* oder des MBE-Gesamtwerts häufiger an, Täter bei Bullying und Cyberbullying zu sein. Diese Befunde deuten darauf hin, dass die MBE-Gesamtskala sogar ein potenzielles Screening-Instrument für die Beteiligung an Cyberbullying darstellen könnte.

Wie bereits erwähnt, wies die Subskala *Immersion bei Videospielen* in allen Untersuchungen zu den übrigen Subskalen abweichende Befunde auf. So korrelierte *Immersion bei Videospielen* bei Jugendlichen positiv mit Aggression und der Präferenz für gewalthaltige Medieninhalte und negativ mit prosozialem Verhalten im Schulalltag. Bei Erwachsenen fanden sich einerseits Zusammenhänge zur Präferenz für gewalthaltige Medieninhalte, andererseits ließen sich positive Korrelationen mit traditioneller Empathie feststellen. Bei Jugendlichen korrelierte *Immersion bei Videospielen* negativ mit der Subskala *Affektive Medienempathie* und bei Erwachsenen positiv mit *Affektiver Medienempathie* und *Medialer Anteilnahme*. Folgestudien mit detaillierter Erfassung der Mediennutzung (Nutzungshäufigkeit und Intensität der Nutzung) wären wünschenswert, um zu untersuchen ob diese Unterschiede auf das Alter oder auf das Mediennutzungsverhalten zurückgehen. Auch bei traditioneller Empathie sind die Forschungsbefunde zu Alterseffekten bislang nicht eindeutig (z.B. Jolliffe & Farrington, 2004; Lennon & Eisenberg, 1987).

Bei der Erstellung des MBE-Gesamtwertes scheinen sich die entgegengesetzten Zusammenhänge von *Immersion bei Videospielen* und den anderen Subskalen auszugleichen. Daher sollte ein Gesamtwert lediglich aus den übrigen vier Subskalen gebildet werden, während *Immersion bei Videospielen* separat ausgewertet werden sollte.

Weitere Studien sind notwendig, um die Kriteriumsvalidität und prognostische Validität der Subskalen und des Gesamtwertes weiter zu untersuchen. Eine separate Nutzung einzelner Subskalen für verschiedene Fragestellungen sollte ebenfalls geprüft werden (siehe auch Luhtanen & Crocker, 1992), da dies die prognostische Validität erhöht. Die vorliegenden Ergebnisse legen die Vermutung nahe, dass die Subskalen *Immersion bei Videospielen* und *Mediale Anteilnahme* das Verhalten von jugendlichen Mediennutzern nach einem gewalthaltigen Videospiel stärker moderieren als ein Gesamtwert. Ebenso scheinen einzelne Subskalen die emotionalen Prozesse bei Cyberbullying begreiflich zu machen, weil insbesondere *Medienmitleid* und *Mediale Anteilnahme* negativ mit Cyberbullying zusammenhängen, während *Kognitive Medienempathie* unkorreliert ist. Dies deutet auf die spezifische Rolle affektiver Prozesse des Mitleids und der Anteilnahme bei realen Zielpersonen im Kontext von Online-Aggressionen hin. Inwieweit MBE die potenziell schädlichen Effekte gewalthaltiger Medien (siehe Anderson et al., 2010) oder Mediennutzungsverhalten moderiert oder gar mediiert und ob medienbasierte Empathie die Medienrezeption spezifischer erfasst als Empathie (Nathanson, 2003), sollte in Folgestudien geklärt werden.

Kritisch sei angemerkt, dass alle Angaben durch Selbstauskünfte gewonnen wurden, die in zukünftigen Studien durch objektive Empathiemaße validiert werden sollten. Fehlende Werte traten speziell bei Items zu Videospielen auf, allerdings liegt es auf der Hand, dass die Messung von MBE Erfahrungen mit den entsprechenden Medienarten voraussetzt. Zunehmend intensivere und häufigere Mediennutzung (z.B. BIU, 2012) und die unklare Prädiktionskraft von traditioneller Empathie in Medienwirkungsuntersuchungen (z.B. Krahé & Möller, 2010) weisen jedoch auf die Notwendigkeit dieser kontextspezifischen Skala hin. Zusätzlich erweist sich die MBE-Skala als weitgehend stabil. Einzig *Mediale Anteilnahme* scheint stärker als andere Subskalen

davon abzuhängen welche Medienerlebnisse man in der letzten Zeit erfahren hat.

Somit scheint die Struktur der 25-Item-Skala bestätigt und die Ergebnisse deuten darauf hin dass MBE, im Gegensatz zu anderen Messinstrumenten, sowohl die Nutzung neuer als auch länger etablierter Medien umfasst. Zum jetzigen Zeitpunkt noch ungeklärt ist die Rolle von MBE in der Prävention. So könnte MBE ähnlich wie allgemeine Empathie als Schutzfaktor vor aggressivem Verhalten (Pfetsch, Steffgen, Gollwitzer & Ittel, 2011) in entsprechenden Trainings gegen die Wirkung von Mediengewalt oder Cyberbullying (mit-) gefördert werden oder hilfreich sein bei der zielgruppenspezifischen Planung von (medial vermittelten) Präventionsmaßnahmen.

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Tabelle 1. Faktorladungen und Kommunalitäten (h^2) der Items in Studie 1.

Tabelle 2. Deskriptive Werte, Trennschärfen, Schwierigkeiten und Reliabilitäten der Items und Subskalen in Studie 1 und Studie 2.

Tabelle 3. Interkorrelationen der Subskalen und Korrelation zu anderen Konstrukten zum ersten Messzeitpunkt, sowie Stabilitätskoeffizienten (in der Diagonalen) zwischen erstem und zweitem Messzeitpunkt in Studie 1.

Tabelle 4. Interkorrelationen der Subskalen und Korrelation zu anderen Konstrukten zum ersten Messzeitpunkt, sowie Stabilitätskoeffizienten (in der Diagonalen) zwischen erstem und zweitem Messzeitpunkt in Studie 2.

Tabelle 1. Faktorladungen und Kommunalitäten (h^2) der Items in Studie 1.

	Faktorladungen					
	1	**2**	**3**	**4**	**5**	h^2
Medienmitleid (5 Items)						
Bei Reportagen über Cyber-Mobbing (Schikane über Internet und Handy), tun mir die Opfer wirklich leid.	.280	**.754**		.215	.113	.708
Es geht mir nahe, wenn ich im Internet erfahre, wie jemand schikaniert und fertig gemacht wird.	.134	**.702**		.216	.113	.570
Bei Lästereien im Internet überlege ich mir, wie es für die Betroffenen sein muss, wenn sie davon erfahren würden.	.155	**.648**		.423	.115	.637
Dokumentationen über Ungerechtigkeit machen mich wütend.	.174	**.596**	.131	.168	.285	.512
Bei Medienberichten über Menschen, denen es schlechter geht als mir, habe ich Mitleid mit den Betroffenen.	.208	**.622**	-.138		.255	.521
Affektive Medienempathie (4 Items)						
Wenn ich in Filmen sehe, dass Menschen leiden, fühle ich mit ihnen.	.198	.348	-.116	.229	**.711**	.731
Ich fühle mit, wenn ich in Filmen traurige Szenen sehe.	.199	.356	-.129	.222	**.768**	.822
Ich habe Mitleid mit Personen, denen in Romanen etwas Schlimmes passiert.	.217	.288	-.116	.122	**.769**	.749
Wenn ich in Filmen oder im Fernsehen sehe, dass sich Menschen sehr freuen, freue ich mich selbst.	.190	.538		.211	**.377**	.514
Kognitive Medienempathie (5 Items)						
Wenn ich mich über eine Nachricht per Email oder Chat ärgere, stelle ich mir vor, wie es die andere Person gemeint haben könnte.		.348		**.542**		.422
Bei einem Streit im Film sehe ich die Standpunkte beider Streitparteien.	.130		.190	**.560**	.272	.441
Ich denke darüber nach, was meine Nachrichten in Emails oder Chats bei anderen auslösen.		.258		**.765**		.653
Ich denke darüber nach, was meine Einträge in Foren oder Blogs bei anderen auslösen.	.124	.333		**.753**		.704
Meine Beiträge in Foren, Chats etc. formuliere ich so, dass sie mitfühlend auf die Nachrichten anderer eingehen.	.105	.146		**.768**	.187	.657
Mediale Anteilnahme (6 Items)						
Bei Fernsehberichten über Mobbing verstehe ich, wie schlimm das Leben der Opfer sein muss.	**.732**	.241		.125	.105	.624
Wenn ich im Fernsehen oder Kino eine große Ungerechtigkeit sehe, rege ich mich richtig auf.	**.680**				.340	.583
Medienberichte darüber, was in der Welt passiert, gehen mir sehr nahe.	**.788**	.139				.644
Lese ich im Internet davon, wie unfair manche Menschen behandelt werden, bekomme ich Mitleid mit ihnen.	**.836**	.280				.780
Wenn ich in Filmen sehe, dass Menschen traurig sind, verstehe ich, warum sie weinen.	**.671**	.107		.138	.175	.514
Dokumentationen über arme Menschen machen mich traurig.	**.744**	.209	-.120		.131	.629
Immersion bei Videospielen (5 Items)						
In den Charakter eines Videospiels versetze ich mich hinein.			**.908**			.838
Ich werde durch die Stimmung in einem Videospiel angesteckt.			**.827**			.695
Wenn ich ein gutes Videospiel spiele, versetze ich mich in die Hauptperson.			**.834**		-.130	.720
Nach dem Spielen eines Videospiels fühle ich mich selbst so, als ob ich einer der Charaktere aus diesem Spiel sei.			**.796**			.636
Bei guten Videospielen erlebe ich sehr starke Gefühle.			**.609**	.108		.388

Anmerkung: es werden nur Faktorladungen >.10 dargestellt, höchste Faktorladungen sind fett dargestellt.

Tabelle 2. Deskriptive Werte, Trennschärfen, Schwierigkeiten und Reliabilitäten der Items und Subskalen in Studie 1 und Studie 2.

	Studie 1 (Jugendliche)					Studie 2 (Erwachsene)				
	M	***SD***	r_{it}	p_m	**α**	***M***	***SD***	r_{it}	p_m	**α**
Medienmitleid	**2.95**	**0.94**			**.82**	**3.56**	**0.72**			**.79**
Bei Reportagen über Cyber-Mobbing (Schikane über Internet und Handy), tun mir die Opfer wirklich leid.	3.05	1.28	.71	.61		3.59	1.03	.68	.72	
Es geht mir nahe, wenn ich im Internet erfahre, wie jemand schikaniert und fertig gemacht wird.	2.69	1.10	.59	.54		3.45	0.99	.71	.69	
Bei Lästereien im Internet überlege ich mir, wie es für die Betroffenen sein muss, wenn sie davon erfahren würden.	2.86	1.22	.62	.57		3.32	1.04	.48	.66	
Dokumentationen über Ungerechtigkeit machen mich wütend.	2.66	1.31	.57	.53		3.71	0.96	.45	.74	
Bei Medienberichten über Menschen, denen es schlechter geht als mir, habe ich Mitleid mit den Betroffenen.	3.48	1.21	.57	.70		3.55	0.88	.56	.71	
Affektive Medienempathie	**2.74**	**1.05**			**.85**	**3.57**	**0.79**			**.83**
Wenn ich in Filmen sehe, dass Menschen leiden, fühle ich mit ihnen.	2.92	1.17	.76	.58		3.55	0.96	.75	.71	
Ich fühle mit, wenn ich in Filmen traurige Szenen sehe.	2.96	1.36	.80	.59		3.81	0.95	.72	.76	
Ich habe Mitleid mit Personen, denen in Romanen etwas Schlimmes passiert.	2.46	1.30	.71	.49		3.33	1.10	.59	.67	
Wenn ich in Filmen oder im Fernsehen sehe, dass sich Menschen sehr freuen, freue ich mich selbst.	2.63	1.19	.53	.53		3.50	0.90	.57	.70	
Kognitive Medienempathie	**2.87**	**0.90**			**.78**	**3.65**	**0.67**			**.71**
Wenn ich mich über eine Nachricht per Email oder Chat ärgere stelle ich mir vor, wie es die andere Person gemeint haben könnte.	2.92	1.21	.48	.58		3.63	0.97	.36	.73	
Bei einem Streit im Film sehe ich die Standpunkte beider Streitparteien.	2.86	1.21	.40	.57		3.59	0.80	.31	.72	
Ich denke darüber nach, was meine Nachrichten in Emails oder Chats bei anderen auslösen.	3.08	1.29	.61	.62		3.83	0.96	.58	.77	
Ich denke darüber nach, was meine Einträge in Foren oder Blogs bei anderen auslösen.	2.82	1.26	.69	.56		3.67	1.15	.64	.73	
Meine Beiträge in Foren, Chats etc. formuliere ich so, dass sie mitfühlend auf die Nachrichten anderer eingehen.	2.69	1.17	.63	.54		3.43	1.01	.49	.69	
Mediale Anteilnahme	**3.02**	**0.93**			**.87**	**3.58**	**0.62**			**.77**
Bei Fernsehberichten über Mobbing verstehe ich, wie schlimm das Leben der Opfer sein muss.	3.20	1.20	.68	.64		3.77	0.90	.48	.75	
Wenn ich im Fernsehen oder Kino eine große Ungerechtigkeit sehe, rege ich mich richtig auf.	2.52	1.28	.58	.50		3.16	1.03	.49	.63	
Medienberichte darüber, was in der Welt passiert, gehen mir sehr nahe.	3.07	1.12	.67	.61		3.56	0.83	.51	.71	
Lese ich im Internet davon, wie unfair manche Menschen behandelt werden, bekomme ich Mitleid mit ihnen.	2.99	1.19	.77	.60		3.55	0.84	.62	.71	
Wenn ich in Filmen sehe, dass Menschen traurig sind, verstehe ich, warum sie weinen.	3.18	1.17	.59	.64		3.83	0.83	.38	.77	
Dokumentationen über arme Menschen machen mich traurig.	3.17	1.21	.68	.63		3.56	0.97	.62	.71	
Immersion bei Videospielen	**2.06**	**1.03**			**.86**	**2.29**	**0.90**			**.87**
In den Charakter eines Videospiels versetze ich mich hinein.	2.02	1.32	.84	.41		2.32	1.19	.83	.46	
Ich werde durch die Stimmung in einem Videospiel angesteckt.	2.23	1.31	.71	.45		2.52	1.14	.71	.50	
Wenn ich ein gutes Videospiel spiele, versetze ich mich in die Hauptperson.	2.42	1.42	.73	.48		2.45	1.26	.78	.49	
Nach dem Spielen eines Videospiels fühle ich mich selbst so, als ob ich einer der Charaktere aus diesem Spiel sei.	1.67	1.14	.67	.33		1.44	0.70	.43	.29	
Bei guten Videospielen erlebe ich sehr starke Gefühle.	1.93	1.22	.47	.39		2.49	1.21	.74	.50	
Gesamtskala	**2.74**	**0.62**			**.87**					
Gesamtskala (ohne Immersion bei Videospielen)	**2.91**	**0.74**			**.89**	**3.57**	**0.58**			**.91**

Anmerkungen: M = Mittelwert; SD = Standardabweichung; r_{it} = Trennschärfe; p_m = Schwierigkeit; α = Relibilität.

Tabelle 3. Interkorrelationen der Subskalen und Korrelation zu anderen Konstrukten zum ersten Messzeitpunkt, sowie Stabilitätskoeffizienten (in der Diagonalen) zwischen erstem und zweitem Messzeitpunkt in Studie 1.

	MM	**AM**	**KM**	**MA**	**IV**	**MBE**	**MBE - IV**	**Alter**	**IRI**	**Fantasie Empathie**	**F&F Emp.**	**AQ**	**Phys. Aggr.**	**Med. Nutz.**	**Gew.Med.**	**Bully**	**CBully**	**NSV**	**Familien-beziehung**	**Pros. Schule**
MM	**.56****	.67**	.58**	.48**	-.03	.82**	**.86****	.13*	.39**	.34**	.44**	-.14*	-.16**	-.15*	-.21**	-.05	-.17**	.18**	.45**	.27**
AM	/	**.72****	.49**	.48**	-.15*	.74**	**.82****	.13*	.36**	.35**	.43**	.03	-.12	-.15*	-.29**	.02	-.06	.09	.43**	.20**
KM	/	/	**.68****	.26**	.08	72**	**.72****	.19**	.27**	.23**	.30**	-.05	-.06	-.06	-.11	.00	-.08	.16*	.30**	.19**
MA	/	/	/	**.31****	-.10	.68**	.74**	.01	.71**	.57**	.68**	-.13*	-.26*	-.26**	-.31**	-.18**	-.22**	.34**	.68**	.41**
IV	/	/	/	/	**.60****	.27**	-.07	-.03	.01	.10	-.03	.17**	.13*	.15*	.24**	.05	.07	-.09	-.02	-.15**
MBE	/	/	/	/	/	**.63****	.86**	.12*	.56**	.51**	.58**	-.04	-.15*	-.15*	-.21**	-.06	-.15*	.22**	.59**	.29**
MBE-IV	/	/	/	/	/	/	**.67****	.14*	.58**	.49**	.61**	-.10	-.20**	-.20**	-.30**	-.08	-.17**	.26**	.61**	.35**

Anmerkung: ** p < 0.01. * p < 0.05; MM = Medienmitleid; AM = Affektive Medienempathie; KM = Kognitive Medienempathie; MA = Mediale Anteilnahme; IM = Immersion bei Videospielen; MBE = Medienbasierte Empathie (Gesamtwert); MBE-IV = Gesamtwert ohne Immersion bei Videospielen; IRI = Interpersonal Reactivity Index; F & F Emp. = Film- und Fernseh-Empathie; AQ = Aggression Questionnaire; Phys. Aggr. = Physische Aggression; Med. Nutz. = Mediennutzung; Gew. Med. = Präferenz für gewalthaltige Medienangebote; CBully = Cyberbully; NSV = Norm der sozialen Verantwortung; Pros. Schule = Prosoziales Verhalten in der Schule.

Tabelle 4. Interkorrelationen der Subskalen und Korrelation zu anderen Konstrukten zum ersten Messzeitpunkt, sowie Stabilitätskoeffizienten (in der Diagonalen) zwischen erstem und zweitem Messzeitpunkt in Studie 2.

	MM	**AM**	**KM**	**MA**	**IV**	**MBE - IV**	**Alter**	**IRI**	**FE**	**F&F Emp.**	**AQ**	**Phys. Aggr.**	**Med. Nutz.**	**Gew.Med.**	**NSV**	**Pros. Alltag**	**Antisoz. Alltag**
MM	**.69****	.62**	.43**	.81**	.09	**.90****	.14*	.55**	.36**	.59**	-.19**	-.22**	-.10	-.28**	.25**	.20**	-.12
AM	/	**.67****	.31**	.70**	.16*	**.83****	.17*	.68**	.65**	.65**	-.22**	-.24**	-.13*	-.22**	.18**	.20**	-.19**
KM	/	/	**.69****	.31**	.04	**.62****	.12	.46**	.27**	.30**	-.26**	-.23**	-.09	-.08	.14**	.02	-.16*
MA	/	/	/	**.72****	.19*	.90**	.14*	.62**	.46**	.64**	-.16**	-.23**	-.07	-.21**	.24**	.21**	-.16**
IV	/	/	/	/	**.71****	.17	-.02	.21**	.27**	.20**	.06	.03	.14	.33**	-.01	-.12	.03
MBE - IV	/	/	/	/	/	**.73****	.15*	.71**	.53**	.72**	-.25**	-.26**	-.09	-.30**	.29**	.22**	-.19**

Anmerkung: ** p < 0.01. * p < 0.05; MM = Medienmitleid; AM = Affektive Medienempathie; KM = Kognitive Medienempathie; MA = Mediale Anteilnahme; IM = Immersion bei Videospielen; MBE-IV = Medienbasierte Empathie (Gesamtwert ohne Immersion bei Videospielen); IRI = Interpersonal Reactivity Index; F & F Emp. = Film- und Fernseh-Empathie; AQ = Aggression Questionnaire; Phys. Aggr. = Physische Aggression; Med. Nutz = Mediennutzung; Gew. Med. = Präferenz für gewalthaltige Medienangebote; NSV = Norm der sozialen Verantwortung; Pros. Alltag = Prosoziales Verhalten im Alltag; Antisoz. Alltag = Antisoziales Verhalten im Alltag

2. Final discussion

The main aim of this thesis was to investigate the role of empathy in the media context. In Manuscript #1 and Manuscript #2 the function of empathy is explored experimentally in three studies. How does an empathy induction before playing a video game affect the players` perception of the game and his or her affect, cognitions, and behavior? In Manuscript #3, a different aspect of empathy is emphasized. Assuming that empathy in the media differs from the personality trait of empathy in face-to-face interaction, a new scale for media-based empathy is suggested. This scale was developed and validated in two studies. Both approaches reveal new insights into empathic responses to media content and results suggest that the distinctiveness of empathic reactions in the media context (both as state and trait empathy) is a promising candidate to enrich and clarify results in veracious research fields of media psychology (e.g., media effects, cyberbullying, media competences). These findings are embedded in the current research landscape and discussed in the following sections.

As outlined in the introduction, a large part of the population spends much of their leisure time engaged with fictional narratives and media consumption (e.g., Gentile, Coyne, & Walsh, 2011). The high rate of violence in media content (e.g., Smith, Lachlan, & Tamborini, 2003) and its potentially negative effect on media users (e.g., Anderson et al., 2010) have contributed to the growing attention this field of research has received in recent years. Negative effects include increased aggressive behavior (e.g., Coyne et al., 2011; Konijn, Nije Bijvank, & Bushman, 2007), more aggressive cognitions (e.g., Anderson & Carnagey, 2009), less prosocial behavior (Sheese & Graziano, 2005), and decreased empathy in players (Carnagey, Anderson, & Bushman, 2007). Researching video games has therefore strong implications for society. Video games are not only the most popular modern medium, they also bear a higher potential for players to get emotionally involved

(i.e., immersion; Williams, Yee, & Caplan, 2008) and generally provide a perfect medium for learning of both prosocial and antisocial behavior (Gentile & Gentile, 2008).

For violent content, the General Aggression Model (GAM; e.g., Anderson & Bushman, 2002a; Carnagey & Anderson, 2004) is most commonly used to explain the effects of violent media content on the behavior of media users. Importantly, media use and media effects are not unidirectionally related. Other research proposes that media effects also affect media consumption preferences and both processes reinforce each other in a "downward spiral" for violent media content (e.g., Slater, Henry, Swaim, & Anderson, 2003). However, media violence is interpreted as only one amongst other risk and protective factors when explaining aggressive behavior (i.e., risk and resilience model; Gentile & Bushman, 2012). Other factors (e.g., age, trait empathy in players) may either directly predict violent behavior or interact with violent media consumption and thus moderate the effects of violent media use on subsequent behavior. This thesis' findings suggest both state and trait empathy to be such moderators. While the influence of such state and trait variables can also be integrated into the theoretical framework of the GAM, the role of empathy might be even better understood in the newly developed Differential Susceptibility to Media use Model (DSMM; Valkenburg & Peter, 2013). This model focuses more on the individual susceptibility of media users and how this susceptibility may be enhanced or reduced. The assessment of personality factors and cognitive, emotional, and excitative media response states (i.e., state variables that originate from media use) is explicitly advised. Therefore, our findings on the effects of an empathy induction (Manuscript #1 and Manuscript #2) and the personality trait of media-based empathy (MBE, Manuscript #3) perfectly fit into this model. Before discussing the findings from the three manuscripts more in detail, the reader is shortly reminded why empathy is investigated in the first place.

Feeling empathy and supporting others are indispensable for many successful social interactions (Batson, 2009; Penner, Dovidio, Piliavin, & Schroeder, 2005). Due to its relevance, empathy has been investigated in many domains. Despite the fact that the empathy is shown to be an important factor in media perception (e.g., Nathanson, 2003), the role of empathy has received comparably less attention in the context of media use research.

The controversy regarding the term empathy and its various definitions has already been alluded to in the introduction. In a nutshell, empathy comprises an affective and a cognitive component (see Cohen & Strayer, 1996; Jolliffe, & Farrington, 2006) and is closely linked to many positive behavioral and cognitive outcomes in our daily interactions (e.g., Eisenberg & Miller, 1987; Hoffman, 2000). Moreover, empathy correlates negatively with aggression, delinquency and bullying (e.g., Gini, Albiero, Benelli, & Altoè, 2007; Jolliffe & Farrington, 2004; Miller & Eisenberg, 1988). As also mentioned in the introduction, empathy trainings (e.g., Berghofer, Gonja, & Oberlechner, 2008) are capable of reducing or buffering future aggressive behavior in potential or former perpetrators of violence (e.g., Hodson, Choma, & Costello, 2009; Miller & Eisenberg, 1988) and thus empathy mediates social behavior (e.g., Eisenberg & Miller, 1987).

Despite the fact that fictional content is often perceived as if it was real (Slater et al., 2006; Weaver & Lewis, 2012) and that people may respond empathically to media presentations (e.g., Konijn, Walma van der Molen, & Van Nes, 2009), only few studies have tested empathy in the media context (e.g., Calvert, Strouse, & Murray, 2006). Against this backdrop, this thesis examined the role of empathy as a moderator in the process of media effect. Experimentally inducing empathy before playing a video game and testing for moderation effects between media consumption and subsequent perceptions and behavior (Manuscript #1 and Manuscript #2) is a novel approach to gain an understanding of the

emotional processes in players while actually playing a game.

In Manuscript #3, a measure of media-based empathy was developed and validated. This measure is based on the dimensional model underlying the Interpersonal Reactivity Index (IRI; Davis, 1983), assessing a more traditional form of empathy that has already been reported and tested in previous media effect studies (e.g., Anderson et al., 2010; Funk & Buchman, 1995; Krahé & Möller, 2010), also as a moderator (e.g., Calvert et al., 2006). However, as already mentioned in the introduction, the implementation of a different form of empathy in the media is necessary (e.g., Leibetseder, Laireiter, & Köller, 2007) as clearly distinct mechanisms play a role when feeling empathy in the media context. Thus, media-based empathy (MBE) is suggested to be advantageous to traditional measures of empathy when exploring media effects.

An empathy induction (Manuscript #1 and Manuscript #2) should moderate the relationship between media input and media perception, as well as media perception and media effects. Media-based empathy (MBE) is introduced as a trait relevant for the whole process of media effects research. In the next section, both approaches of this thesis (i.e., inducing state empathy & measuring trait empathy; see Figure 1), are portrayed separately in more detail.

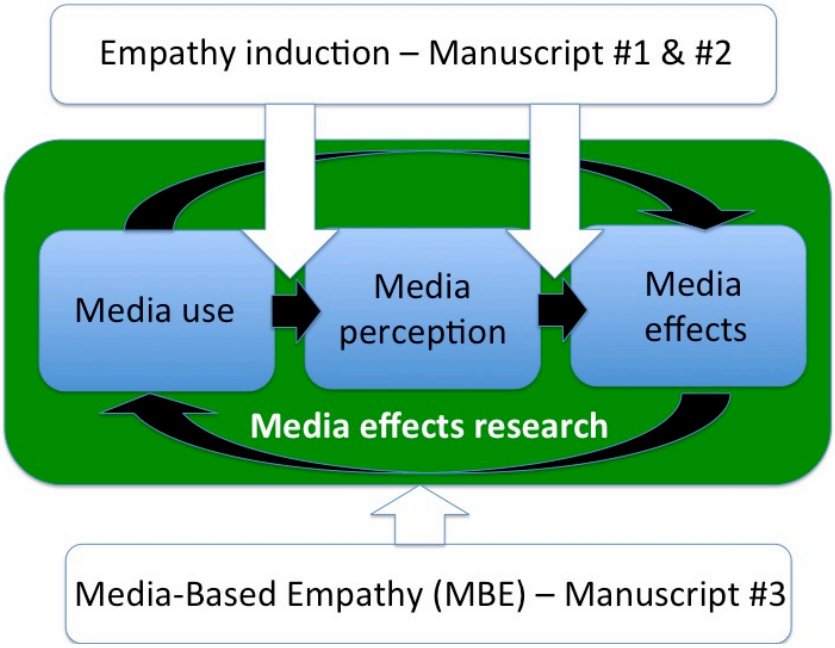

Figure 1. The role of empathy in media effects research addressed in this thesis.

2.1. The moderating role of an empathy induction in a video game (Manuscript #1 and Manuscript #2)

In Manuscript #1, Study 1, playing a violent video game was compared to a prosocial video game and a significant difference between both conditions could be shown: Players of the violent video game acted more antisocially and less prosocially after game play than their counterparts in the prosocial game condition. Measures for the antisocial behavior and prosocial behavior were, respectively, stealing small gifts and returning an optional questionnaire. These are ecologically valid variables and therefore superior to the frequently used behavioral estimators of prosociality and aggression (see Ritter & Eslea, 2005).

The violent video game condition in Study 1 in Manuscript #1 produced unexpected results (i.e., the empathy induction enhanced aggression and reduced prosocial behavior),

wherefore a second study was conducted. In this follow-up study the same violent video game was presented to all participants after an empathy-inducing video clip. When testing for effects of the empathy induction, results showed that, irrespective of which character was played in the game (e.g., victim vs. perpetrator), the empathy clip showed effects, compared to a neutral clip. Participants who had watched the empathy clip showed more prosocial behavior after game play than those in the neutral clip condition. In former studies this behavioral effect was hypothesized but could not be found (e.g., Konijn, Nije Bijvank, van der Heijden, Walma van der Molen, & Hoorn, 2008). Furthermore, the empathy induction also influenced both affective and cognitive variables, as it enhanced affective concern, pity for the opponent and the perception of the violence in the game as justified. However, this positive (empathy) effect was limited to those participants who had played a morally acceptable character in a violent video game (e.g., the female victim; Study 2) and to those who had played a prosocial video game (Study 1). Empathy can thus be interpreted as a temporary protective factor against the negative effects of violent media content in certain video games (e.g., Anderson et al., 2010) and this corresponds to the function of empathy in real world situations (e.g., Cantor, 1998). Previous studies have shown that a prosocial motive in a violent video game (e.g., saving the world; Gitter, Ewell, Guadagno, Stillman, & Baumeister, 2013) mitigates the negative effects (see also Haidt, 2003; Raney, 2005).

Conversely, when playing a morally bad character in a violent video game (Manuscript #1, Study 1 & 2), aggressive cognitions and behavior even increased after empathy induction. However, the reported pity and concern for the opponent in the game were also enhanced through the empathy induction. This means that, despite the fact that participants reported feeling more empathy, their subsequent thinking and behavior turned to the worse (i.e., being more aggressive). To follow up on these counterintuitive or

even contradictory findings, and in order to further investigate the mechanisms behind this effect, the study reported in Manuscript #2 was designed.

Henceforth, in Manuscript #2 the initial moral valence of the video game characters was manipulated (i.e., famous hero vs. villain). When comparing these characters, those participants playing the evil villain (i.e., Joker) showed more hostile perceptions and less prosocial behavior than participants who had played the hero character (i.e., Superman). This result is supported by other research findings showing that famous fictional characters differentially influence user's perception of a video game and their subsequent behavior (e.g., Calvert, Murray, & Conger, 2004; Rigby & Ryan, 2011). As both characters act violently in the game, however, the finding from Manuscript #2 contradicts earlier studies suggesting that reactions to media content are not based on the general liking of a character, but on the character´s behavior (Zillmann & Cantor, 1977). The result suggests that playing the violent villain primed more aggressive cognitions than playing the violent hero (see below for a more detailed explanation of priming effects).

When examining the relevant content-empathy interaction, a similar effect as in Manuscript #1 was found for aggressive cognitions after game play. A sad family background story served as empathy induction in the study in Manuscript #2. When playing a hero (i.e., Superman), empathy reduced negative effects (i.e., decreased hostile perceptions). When playing the villain (i.e., Joker), however, hostile perceptions even increased. Only in this group (i.e., playing the Joker after empathy induction) the empathy induction also enhanced pity with the opponent and affective concerns. Theories to explain these findings will be outlined in more detail in the following section.

From Manuscript #1 and Manuscript #2 the conclusion can be drawn that behavior, cognitions, and affect after playing a video game not solely depend upon the game content, but also on the game-specific setting (e.g., empathic pre-narrative), the character played

(e.g., hero vs. villain), and players´ interpretation of the role of the character (e.g., perpetrator vs. victim). Only few studies have proposed this complex interplay of forces before (e.g., Gitter et al., 2013). In the study by Gitter and colleagues, however, only positive effects of empathy were reported, as an explicitly prosocial motive of the violence in the game decreased aggression and increased prosocial cognitions in players after playing a violent video game.

The rather contradictory moderating effect of empathy between media presentation and subsequent cognitions and behavior may be possibly explained by moral concerns. Morality has been identified as a guiding force in reactions to media content (Joeckel, Bowman, & Dogruel, 2012) and has recently been introduced to the field of video games research (e.g., Hartmann, Toz, & Brandon, 2010; Weaver & Lewis, 2012). Instead of being unidirectional and causal, emotional responding, cognitive processes and moral behavior affect one another (see Eisenberg, Shea, Carlo, & Knight, 1991). Morally justified violence in a video game, for example, is more accepted by players (Raney, 2011). Moreover, players determine what is fair, right, and just based upon expected outcomes, anticipatory emotions, and affective dispositions toward video game characters (see also Zillmann, 1996). In fact, if a character is judged to be morally ‘‘bad’’, counterempathy may occur in players (i.e., the hope that something bad happens to that character; Zillmann, 2006). Some media users might even be more inclined to seek moral emotions in the media, as indifference towards media characters does not generate the empathy necessary to prompt emotional reactions (Raney, 2011).

The moral valence of the character is not explicitly mentioned in the empathy induction in Study 1 in Manuscript #1. Participants are only encouraged to focus on feelings while playing the game. In Study 2, however, the story in the empathy-inducing clip reveals the moral valence of the game characters by identifying them as victim and

perpetrator. Inducing empathy in a victim/perpetrator situation has been successfully done before. In Nathanson and Cantor's (2000) study, inducing empathy for the victim in media users led to less favorable evaluations of the perpetrator, more favorable evaluations of the victim, and the violent act was generally considered as less justified. In Manuscript #1, Study 2, the pre-narrative justifies the violence displayed by the victim (i.e., revenge), but the perpetrator´s violence in the game remains unjustified. As media characters must be morally justifiable (Haidt, 2007), such lack of justification may lead to cognitive dissonance and distress (e.g., Abelson, 1968; Festinger, 1957). Cognitive dissonance may only be reduced by changings one´s behavior or reframing one´s thoughts (Festinger, 1957). Hence, playing the perpetrator and showing (unjustifiable) violence increased aggressive behavior in players after game play. This modification of one´s behavior is also described in self-regulation research (Baumeister & Heatherton, 1996).

In Manuscript #2, the roles of hero and villain are tested and the empathy induction consists of a sentimental family history prologue. This emotional story serves as justification and excuse for the violence in the subsequent game and thus may have disinhibited participants' own aggression after playing the game (see also Hartmann et al., 2010; Schneider, Lang, Shin, & Bradley, 2004). Therefore, participants' interpretation of the violent behavior in the game (i.e., item: "The violence in the game is justified.") was explicitly investigated. Even though the empathic story generally enhanced the reported justification of violence, no differential pattern for playing the hero or the villain was found. Therefore, the findings from Manuscript #1 and Manuscript #2 cannot be sufficiently rationalized by moral concerns or a justification motive alone. Thus, clarifying the role of moral considerations and resulting feelings (e.g., cognitive dissonance) is an important area for future video game research.

One might speculate that the counterintuitive influence of empathy shown in both

manuscripts (i.e., enhanced aggressions when playing a violent perpetrator or villain) may also be explained by priming processes (e.g., Huesmann, 1998). Priming occurs when people think, feel, or act in a manner consistent with situational cues, but without the conscious intention to do so. Inducing empathy for one's own video game character may translate into higher identification with this character. Thus, strong identification with one´s violent character may prime aggressive thoughts and thereby lead to more aggressive behavior. Results from previous studies support this rationalization (e.g., Peña, Hancock, & Merola, 2009), which is also in line with findings suggesting that video game players are highly motivated to imitate behavior of violent fictional characters (see Konijn et al., 2007). Wishful identification with a violent character provides a glimpse of "what if," which may be a powerful predictor of future behavior (Cohen, 2001). However, these explanations may not entirely explain the effects reported in Manuscript #1, as in Study 2 those participants playing the victim showed more prosocial behavior even though the character was acting violently.

Consequently, both explanatory approaches of priming and moral considerations can only account for some of the findings. As with other contradictory or "ironic" effects of empathy (e.g., Epley, & Caruso, 2009; Vorauer & Sasaki, 2009), also in the media context (see Zillmann, 1994), existing theories have not been able to fully explain the results. In a recent study by Vorauer and Sasaki (2009), empathy was induced in highly prejudiced participants before an intergroup exchange, and failed to exert its usual positive effects in these participants, and even led to a derogation of out-group members. This highlights a gap between theory and practical application of the concept of empathy. Moreover, cautious handling of empathy in the media context is required and leaves open questions that should be addressed in future research, which will be presented in the last section of this thesis.

In summary, the results from Manuscript #1 and Manuscript #2 highlight the fact that inducing empathy in video games may in some instances be beneficial, but at other times may have deleterious consequences, depending on whom to feel empathy for. Hence, inducing empathy may "backfire" depending on avatar characteristics in video games. Results suggest that empathy might serve as a neutral amplifier for already established attitudes, thus widening the gap between "good" and "evil" in video game research. This is in line with earlier studies (e.g., Schneider et al., 2004) and support for this amplifier hypothesis for empathy comes from a different research domain. Kemp and Guastella (2011) investigated the role of the neuropeptide oxytocin. While oxytocin may increase social approach actions like anger and aggression, it may also facilitate positive prosocial behavior. In this case Oxytocin is said to increase approach-related social behaviors while inhibiting withdrawal-related social behaviors. If this explanation may be applied to empathy also needs to be addressed when more research is available.

The results from Manuscript #1 and Manuscript #2 suggest that empathy may be influenced by specific situational cues (e.g., hero or villain character) to show differential effects. Hence, situational variables as well as game and player characteristics have to be taken into account when investigating media effects and proposing potential protective factors to buffer negative media effects (see Gentile, 2011; Gentile & Bushman 2012).

Nevertheless, the data suggest that effects of the video game content (i.e., violent vs. prosocial) are greater than the effects of the empathy induction before game play (see Study 1 in Manuscript #1). More abstractly, effects of media content (e.g., violent character) are still stronger than the moderating effects of empathy (e.g., the sad childhood of a violent character). As the appearance of a fictional character (e.g., outfit, facial expression) and the behavior shown by this character are both more salient than the character´s background or emotions, violent behavior of a violent video game character is

more likely to be imitated (see Konijn et al., 2007) than morally questioned.

Due to the potentially deleterious long-term effects of media violence like desensitization (e.g., Anderson & Bushman, 2002a), investigating the presentation and choice of video game characters becomes particularly important. The induction of empathy in the field of video games has been mistrusted (e.g., D'Aloia, 2009), but the findings in both manuscripts support the realization of such an approach (see also Annetta, 2010). These findings enrich the research landscape of empathy and identification in video games (e.g., Klimmt, Hefner, & Vorderer, 2009).

2.2. The moderating role of media-based empathy (MBE; Manuscript #3)

Manuscripts #1 and Manuscript #2 have identified empathy as a potential moderator when investigating media effects after media consumption. As empathy plays a significant role in media perception and media effects, in Manuscript #3 a scale for media-based empathy (MBE) was developed and validated. The use of scales for traditional forms of empathy in experimental studies is common practice, but may not uncover the underlying mechanisms of empathy moderations, as discussed in the following section.

As already stated in the introduction, existing scales assessing trait empathy normally cover the multiple dimensions of traditional empathy (e.g., cognitive empathy, affective empathy; see Jolliffe & Farrington, 2004), but not all of them acknowledge the distinct empathy observed in the context of media use. Those few scales, which have specifically addressed media empathy (e.g., Früh & Wünsch, 2009), have only adapted existing items in questionnaires assessing traditional empathy for the media context and do not address all forms of modern media (e.g., chat, social networks, video games).

To close this research gap, the novel MBE scale measures a wide range of empathic responses to media content, ranging from confrontation with fictional characters (e.g., in video games) to reactions to mediatized forms of communication (e.g., chats). As stated in the introduction, these virtual communication forms with real people were deliberately integrated into the measuring instrument, as these interactions regularly contain both emotional involvement (e.g., empathy) and antisocial behavior (e.g., cyberbullying; Langos, 2012; Pfetsch, Steffgen, Gollwitzer, & Ittel, 2011; Salmivalli, 2010). Today, even media news frequently utilize the "laws of fiction" (e.g., emotional close-ups, perspective taking, dramatic storylines; Bragg, 2000; Konijn & Hoorn, 2005; Walma van der Molen & Konijn, 2007) to enhance a program's emotional potential. The MBE is the first scale to account for these empathic reactions to emotional news reports, both on an affective and on a cognitive level. The multidimensional structure of the MBE is supported by research that has found separate effects for cognitive and affective dimensions of empathy on behavior after perceiving media content (Davis, Hull, Young, & Warren, 1987).

In Manuscript #3 the development of a proper and contemporary measuring instrument for empathy in the media context is portrayed. The 25 items were tested both in a student and in an adult sample. MBE was shown to be a generally stable construct with high psychometrical quality (Bortz & Döring, 2006). With its five diverse subscales (i.e., media compassion, affective media empathy, cognitive media empathy, media concern, immersion in video games), a wide range of empathic reactions to media content is explored. Moderate negative correlations with measures of aggression, as well as positive medium to high correlations with empathy and other measures of media empathy (e.g., Früh & Wünsch, 2009) confirmed both the validity and the distinctiveness of the measure. However, it has to be mentioned that these correlations only concerned the subscales media compassion, affective media empathy, cognitive media empathy, and media concern.

An exception constitutes the subscale immersion in video games, for which these relations could only be produced in the student sample. Our results suggest that most subscales of the MBE scale measure similar, but not identical aspects of traditional empathy. Analogues to traditional empathy, other dimensions of positive social behavior were also positively related to MBE, including normative and prosocial behavior and a rating of the quality of one's family interactions. Contrary to our hypotheses, however, general media consumption was not associated with MBE. A large body of literature shows that media use is either negatively (i.e., desensitization in media users using frequently violent content; e.g., Strasburger & Wilson, 2003) or positively related to measures of empathy (i.e., cognitive empathy is trained by fictional content; e.g., Pinker, 2011). The missing link in our data may be due to the typically sheer number and short-lasting nature of media presentations, which reduces one´s opportunity for empathic responding (e.g., Zillmann, 1991) or the rather broad assessment of media use.

As mentioned above, an essential component of the MBE scale is the subscale immersion in video games (e.g., item: "When playing a video game I experience strong feelings."). This empathy subscale correlated positively with violent media preferences in both samples. What appeared as a counterintuitive association becomes less inconsistent when the construct underlying this immersion subscale is interpreted as identification. Identification appears to be a condition for feeling empathy in a game (e.g., Cohen, 2001). Accordingly, the findings from Manuscript #3 advise that immersion in video games is, even though closely related to, different from empathy. The constructs of (cognitive) empathy (i.e., role-taking) and identification (i.e., role-playing) have been compared and confused for some decades (e.g., Coutu, 1951). As previous studies have shown, strong identification with a violent virtual character prior to playing a game may result in counterintuitive empathic reactions (Konijn et al., 2007). When investigating the entire

concept of media-based empathy, the aspect of immersion in video games needs to be evaluated separately. Evidently, this subscale differs from the other subscales in meaning and prediction, as it seems to measure only a cognitive dimension of empathy (i.e., immersion or strong identification) in video games. Nonetheless, this subscale was retained in the MBE scale due to its potential predictive power and as a first advance to assess immersion and identification in a video game separately from empathic involvement in the media in one single instrument. Therefore, the immersion subscale is treated and interpreted as a separate dimension within the MBE scale.

2.3. Practical implications

In summary, how can the results of this thesis be applied to open questions in media effects research? Firstly, advice may be derived for gamers, teachers, parents or media producers. As controlling the media use of children and adolescents has shown to be nearly impossible (see also Nije Bijvank, Konijn, Bushman, & Roelofsma, 2009; Pfetsch & Steffgen, 2007) and fundamental changes in the gaming industry are not expected any time soon (e.g., Gentile, Saleem, & Anderson, 2007), media competence strategies have to be encouraged in media users. Specifically, in the process of mediation (i.e., parents discussing with their children the media content; e.g., Chakroff & Nathanson, 2008) the results of Manuscript #1 and Manuscript #2 add to the existing body of research. In earlier studies, discussing potential consequences of violent behavior for the perpetrator (i.e., perspective taking; Huesmann et al., 2003) or taking the perspective of a victim from fictional violence (e.g., Kirsh, 2012) have been shown to lead to a more critical view on media violence. Other studies have indicated that identifying media violence as “only fictional” is a very effective approach (see Kunczik & Zipfel, 2005). Results from Manuscript #1 and Manuscript #2

extend these recommendations by pointing towards a necessary attention regarding the way fictional characters are presented in video games, how the character is perceived morally and if the user feels empathy for this character.

Manuscript #1 and Manuscript #2 suggest that empathy might not be always the appropriate way of recuing aggressive behavior. Additionally, results of Manuscript #3 propose that media users differ regarding their ability to react to and perceive media content. Both conclusions need to be addressed in the design and when implementing future media competence or violence prevention programs. Media competence programs and programs fostering empathy are both frequently advocated for different reasons. On the one hand, media competence is understood to be an important prerequisite to digest and perceive media input (see Chakroff & Nathanson, 2008). Some media competence training programs already target the factor of cognitive empathy in role-playing exercises (e.g., Rosenkoetter, Rosenkoetter, Ozretich, & Acock, 2004). On the other hand, the trainings promoting traditional empathy are mostly directed at perpetrators of violence to reduce aggressive tendencies in the future (e.g., Feshbach & Feshbach, 1982; Manger, Eikeland, & Asbjørnsen, 2001). Taking the perspective of victims of violence and examining one´s feelings has proven to be an important aspect of successful violence prevention programs (e.g., Kärnä et al., 2011). Based on the present results, cautious handling of empathy induction is advised (Manuscript #1 & Manuscript #2). Furthermore, depending on results in the MBE scale, deficiency in participants in these trainings may be more specifically identified (Manuscript #3). The suggestion to handle the induction of empathy cautiously is in line with recent studies (e.g., Beven, O´Brien-Malone, & Hall, 2004), showing that empathy trainings should not be applied to all target groups. On the other hand, fostering MBE in these programs may be effective in both teaching media competence strategies, as well as enhancing cognitive empathy. As media use is highest in

children and adolescents, MBE's potentially buffering function when trained in users has special implications for younger persons (Molitor & Hirsh, 1994). This may result in both a preference for less violent media and in a more realistic perception of media content and media violence. In the long-term, these changes in users' perception may reduce the negative effects of violent media. It is expected that MBE can be implemented both in empathy-, as well as media competence trainings.

The findings of Manuscript #3 suggest that an additional purpose of the MBE scale might be the use as a screening instrument for cyberbullying. Some items specifically address the question how a person reacts when being directly or indirectly confronted with cyberbullying. Initial results in Study 1 in Manuscript #3 show that the MBE sum score and the subscale media compassion are negatively related to being the perpetrator in cyberbullying processes. As cyberbullying perpetrators remain typically anonymous and the feedback from the bullied victim is usually missing (see Slonje & Smith, 2008), media-based empathy may explain some unexpected results in this line of research. High scores in traditional cognitive empathy, for example, are shown to enhance cyber aggression (e.g., Pornari & Wood, 2010). The negative correlation of MBE with cyberbullying found in this thesis might help disentangle this relationship.

Finally, the new results regarding the role of empathy in the process of media research need to be made available to the open public. New developments in the field of media research should always be communicated to public at large as quickly as possible. This reduces the risk of misunderstandings and hasty decisions, as public discussions regarding this topic are frequently conducted on the basis of emotional arguments and personal preferences instead of evidence-based reasons (e.g., Anderson & Bushman, 2002b).

2.4. Limitations and outlook

Due to the fact that empathy is a multifaceted construct, especially conceptualization and instrumentalization of empathy in future experiments needs further addressing in future research. In Manuscript #1 and Manuscript #2 it is assumed that the empathy induction really induces empathy. Empathy is often hard to tell from other affective reactions that resemble empathy (e.g., fictional involvement, emotional contagion; e.g., Tamborini, Stiff, & Heidel, 1990) Thus, future studies should clarify and confirm that empathy is the induced emotion in players. As experiencing congruent feelings to a character on the screen may be only coincidental (see Nathanson, 2003), more detailed assessment of participants´ feelings is recommended in forthcoming experiments. Other suggestions for empathy testing in future experiments include the exploration of empathy inductions in other forms of media (e.g., before watching violent television content) and the inclusion of further relevant dependent measures (e.g., affect in players), in order to improve the understanding of underlying mechanisms.

Regarding the media-based empathy scale, some open questions remain and should be addressed in future analyses. Even though self-report scales are very convenient, economical, easy to administer, and thus frequently used, they have disadvantages (e.g., Eisenberg et al., 1993). Therefore, as empathy is an internal process, a multiple methods approach assessing empathy-related responding would be most favored (see Zhou, Valiente, & Eisenberg, 2003). Generally, future studies should also investigate MBE within other age groups (e.g., young children) and in people with different media habits (e.g., frequent players).

Largely, the moderating role of MBE (between media use and media effects) needs to be addressed in longitudinal studies (see Anderson et al., 2010; Huesmann, Moise-Titus,

Podolski, & Eron, 2003; Krahé & Möller, 2010; Nathanson, 2003). Based on the negative correlations between MBE and media use and the positive relationship between immersion in video games and preference for violent media content in the student sample in Manuscript #3, it is assumed that media-based empathy is influenced by both the frequency of media use, as well as media content. Both factors, in turn, may directly influence the trait media-based empathy in users. In this framework, a hypothetical mediating function of MBE is likely and should be tested in upcoming research. Besides, media use and media preferences should be assessed in more detail (see Nije Bijvank, Konijn, & Bushman, 2012). A single indicator for each construct, as used in Manuscript #3, may not entirely reflect the individual pattern of media use.

When exploring media-based empathy in students, low test-retest reliability was observed for of the subscale media compassion. The fact that media compassion appears to be affected by daily events in young media users might be problematic in the context of personality traits assessment. It is important to mention that in all studies described in Manuscript #3, up to 45% of answers per item were missing. It seems that the specificity of the scale, which is highly advantageous when investigating media effects, is at the same time a disadvantage, as the scale may not be applicable to people without any media experience and habitual use. This is an additional justification in favor of an interpretation on the subscale level. However, as a minimal media use is required in order to assess MBE, this link between MBE and media use generally needs further research attention.

When discussing the MBE scale in this thesis so far, it was always assumed that MBE may serve both as a potential protective factor from negative video game effects, as well as an improved measure of empathy in the context of media, as compared to traditional empathy (e.g., Gentile & Bushman, 2012; Pfetsch et al., 2011). Although findings in Manuscript #3 support this assumption, a direct comparison between MBE and traditional

forms of empathy regarding their predictive value for subsequent behavior is still pending.

2.5. Summary

Within this body of research, the current thesis demonstrated that a) inducing empathy before playing a violent video game can have both expected and contradictory effects and that b) a scale of media-based empathy facilitates and revises the measurement of empathy in the media context.

Consuming violent media is neither a sufficient nor a necessary factor to explain violent behavior in media users. Instead, it is only one factor among others. However, this thesis claimed to consider empathy not only as a conditional pertinent protective factor when using media (i.e., empathy induction; Manuscript #1 & #2), but also as a general disposition in users (i.e., MBE; Manuscript #3). Contrary to suggestions by other research groups (e.g., Mar, Oatley, & Peterson, 2009), individual differences in media-based empathy may indeed be responsible for empathic reactions to fictional media use. The general pattern of relationships suggests, that even though similar to traditional empathy, MBE is a unique trait variable and reflects independent components of empathy (e.g., immersion in video games). Based on our current understanding, MBE examines a yet underappreciated personality trait in media users and thereby contributes to the research of media use and media effects.

Moreover, empathy with a media protagonist is no longer only considered a determinant of the entertainment experience (see Ritterfeld & Jin, 2006; Zillmann, 1991). Instead, a short, modest text- or clip-based empathy induction before game play can influence the effects of playing video games. While this approach has been tested for other factors before (e.g., activated self; Jin, 2011), this thesis explores the impact of

experimentally induced empathy in the video game context for the first-time. In other words, focusing on the own character or adding emotional content to the storyline of a video game via pregame narratives can both ameliorate and enhance the deleterious effects of violent video games on prosocial and antisocial behavior. These findings stress the relevance of focusing not only on the content but also on situational and personality factors in users (e.g., MBE; see Gentile & Bushman, 2012) as well as interacting content factors (e.g., empathic storyline for a violent villain character; see Gentile, 2011) when exploring media effects. Even though the findings reported in this dissertation can be theoretically integrated into the structure of the General Aggression Model (GAM; Anderson & Bushman, 2002a), the results are better understood within the newly developed Differential Susceptibility to Media use Model (Valkenburg & Peter, 2013). As mentioned above, our findings regarding state empathy and trait MBE perfectly fit into this model as this model´s central focus is susceptibility factors like the ones identified in the present research. Testing the DSMM model in comparison to other more established theoretical models of media effects is a task for future studies.

The appropriateness of applying theoretical frameworks of traditional empathy to empathy in the media context is debatable and should be tested in the future. The results presented in this thesis underline the importance of conceptually separating both constructs. In the media context, the available information, the target, and the form of interaction differ (e.g., Barrett-Lennard, 1993). Media interactions are frequently idealized and empathy is therefore felt more easily (see Westermann, Spies, Stahl & Hesse, 1996). Furthermore, the media user needs imagination, as the characters may be fictional and the available information in the media is regularly presented only in excerpts (see Mar & Oatley, 2008). Batson (2009) advocated eight equally legitimated interpretations of the term empathy in the real world context. As this confusion regarding the term empathy and

its interpretation and measurement has not yet been fully solved for traditional empathy, this complexity is expected to be even larger in the media context, due to all potential empathic interactions between real and fictional people in real or fictional contexts.

Nonetheless this dissertation broadens the horizon of potential moderators in media effects research. The important question how a specific media user reacts upon specific media content can be predicted more precisely when exploring the empathic potential of the media content and the media-based empathy in the user.

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Deutsche Zusammenfassung

Durch die zunehmende Medienvielfalt und eine steigenden Mediennutzung (z.B. BIU, 2012) werden Forschungsfragen zu Medieninhalten und deren Wirkungen immer bedeutender. Nicht zuletzt deshalb hat es in den letzten Jahren eine Vielzahl an Studien zu den Wirkungen gewalthaltiger Medien im Allgemeinen (z.B. Boxer, Huesmann, Bushman, O'Brien, & Moceri, 2009) und zu gewalthaltigen Videospielen im Besonderen gegeben (z.B. Anderson et al., 2010). Diese meist negativen Auswirkungen von Gewaltmedien auf Gefühle, Kognitionen und Verhalten sind besorgniserregend und werden in den Medien immer wieder aufgegriffen (siehe Bushman & Anderson, 2002). Ein Hauptaugenmerk der Medienwirkungsforschung in den letzten Jahren besteht demnach darin, potentielle Einfluss- und besonders Schutzfaktoren herauszuarbeiten, die die Wirkung gewalthaltiger Medieninhalte (positiv) beeinflussen können (siehe Gentile & Bushman, 2012). Solch moderierende Faktoren können neben dem Alter und dem Geschlecht auch unter anderem in der Persönlichkeit des Spielers oder spezifischen Elementen der Mediennutzung (z.B. Identifikation mit dem eigenen Videospielcharakter) verankert sein.

Empathie, das bedeutet die Fähigkeit, die Emotionen anderer Personen sowohl kognitiv zu verstehen als auch emotional nachzufühlen (Cohen & Strayer, 1996; Davis, 1980), wurde im Medienkontext bislang kaum erforscht. Erste Hinweise auf die Bedeutung der Rolle von Empathie bei Medien geben Untersuchungen, die Zusammenhänge zwischen Empathie und Medienpräferenzen (Funk & Buchman, 1995), sowie Cyberbullying zeigen (Ang & Goh, 2010). Die Erwartungshaltung an die positive Wirkung von Empathie und Perspektivenübernahme spiegelt sich in Programmen zu Gewaltprävention und in Medienkompetenzprogrammen gleichermaßen wider (Berghofer, Gonja, & Oberlechner, 2008; Chalmers & Townsend, 1990; Rosenkoetter, Rosenkoetter, Ozretich, & Acock, 2004).

Dabei scheinen im Medienkontext und in der direkten Kommunikation unterschiedliche Empathieprozesse zu wirken (Leibetseder, Laireiter & Köller, 2007). Besonders die Forschungslage zu Empathie bei Videospielen ist sehr uneindeutig, gibt jedoch Anlass zur Vermutung dass Empathie nicht nur die Spielwahrnehmung sondern auch das Verhalten nach dem Spiel beeinflusst (z.B. Konijn, Nije Bijvank, van der Heijden, Walma van der Molen & Hoorn, 2008). Die vorliegende Dissertation behandelt zwei Hauptfragestellungen, die auf die Rolle von Empathie im Medienkontext abzielen.

Die Manuskripte #1 und #2 beschäftigten sich mit der Frage, inwieweit eine Induktion von Empathie vor einem Videospiel die Wahrnehmung des Spielinhalts, sowie die Kognitionen und das Verhalten nach dem Spiel beeinflusst. In Manuskript #3 wird auf der Grundlage der aus den Manuskripten #1 und #2 gewonnenen Erkenntnisse eine neue, der aktuellen Mediennutzung angemessene Skala zu medienbasierter Empathie (MBE) vorgestellt.

Entgegen den Erwartungen zeigte sich in den Ergebnissen von Manuskript #1 und #2 jedoch, dass eine Induktion von Empathie nur unter gewissen Umständen die für Empathie üblichen Effekte aufweist. In Manuskript #1 reduziert die induzierte Empathie die negativen Effekte des Videospiels auf das Verhalten des Nutzers nur bei den Studienteilnehmern, die zuvor ein prosoziales Videospiel (Studie 1) oder einen sympathischen Charakter in einem gewalthaltigen Videospiel gespielt haben (Studie 2). In einem Gewaltspiel mit unsympathischem Charakter steigt jedoch durch die Induktion das antisoziale Verhalten, während das prosoziale Verhalten nachlässt.

Diese unerwarteten Effekte der induzierten Empathie in der Gewaltspielbedingung wurden in Manuskript #2 vertiefend untersucht. Der Ansatz wurde insofern verändert, als dass zwei bekannte, mit gegensätzlichen moralischen Werten besetzte Videospielcharaktere (der Held Superman und der Bösewicht Joker) getestet wurden.

Tatsächlich zeigte sich auch in Manuskript #2, dass eine Induktion von Empathie bei einem negativ besetzten Charakter eher zu einer Verstärkung der negativen Effekte gewalthaltiger Videospiele führt. Dieser Verstärker-Effekt, der die durchweg positive Wirkung von Empathie in Frage stellt, lässt sich jedoch nur teilweise durch bisherige Theorien (z.B. die Rechtfertigung von Gewalt; Hartmann, Toz, & Brandon, 2010; kognitive Dissonanz; Festinger, 1957) erklären.

Nachdem die kontraintuitiven Ergebnisse aus den Manuskripten #1 und #2 Anlass dazu gaben, der Messung von Empathie bei der Untersuchung von Medieninhalten in Zukunft stärkere Aufmerksamkeit zu schenken, sollte in Manuskript #3 eine Skala vorgestellt werden (medienbasierte Empathie, MBE), die Empathie im Medienkontext zielgenauer abbildet als bisherige Skalen (z.B. E-Skala; Leibetseder et al., 2007). Die Skala soll sowohl affektive als auch kognitive Anteile von Empathie in allen heute verfügbaren Medien abbilden. Die Skala wurde in zwei Studien anhand verschiedener Stichproben entwickelt, validiert und auf Stabilität getestet. Es konnten folgende fünf Subskalen herausgearbeitet werden: *Medienmitleid, Affektive Medienempathie, Kognitive Medienempathie, Mediale Anteilnahme* und *Immersion bei Videospielen*. Die Ergebnisse geben ersten Anlass zu der Vermutung, dass die MBE-Skala für Fragestellungen aus dem Bereich der Mediennutzungs- und Medienwirkungsforschung, sowie des Cyberbullying, ein geeigneteres Messinstrument zu sein scheint als Instrumente, die traditionelle Empathie erfassen (siehe Jolliffe & Farrington, 2004). Der Subskala *Immersion bei Videospielen* kommt hier eine besondere Rolle zu, da sie eher eine emotionale Identifikation mit dem Avatar im Videospiel abbildet und teilweise konträre, doch ebenfalls signifikante Zusammenhänge aufweist.

Alle drei Manuskripte unterstützen die Annahme, dass Empathie ein wichtiger vermittelnder emotionaler Faktor zwischen Mediennutzung und Medienwirkung ist (siehe

auch Nathanson, 2003; Schramm & Wirth, 2006), dem in der Medienwirkungsforschung zukünftig mehr Aufmerksamkeit geschenkt werden sollte.

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Resume

Erklärung des Autors

Hiermit versichere ich, dass ich meine Dissertation „ Empathy in Video Games and other Media “ selbstständig, ohne unerlaubte Hilfe angefertigt habe und mich dabei keiner anderen als der von mir ausdrücklich bezeichneten Quellen und Hilfen bedient habe.

Die Dissertation wurde in der jetzigen oder einer ähnlichen Form noch bei keiner anderen Hochschule eingereicht und hat noch keinen Prüfungszwecken gedient.

_____ _____

(Ort, Datum) Christian Happ